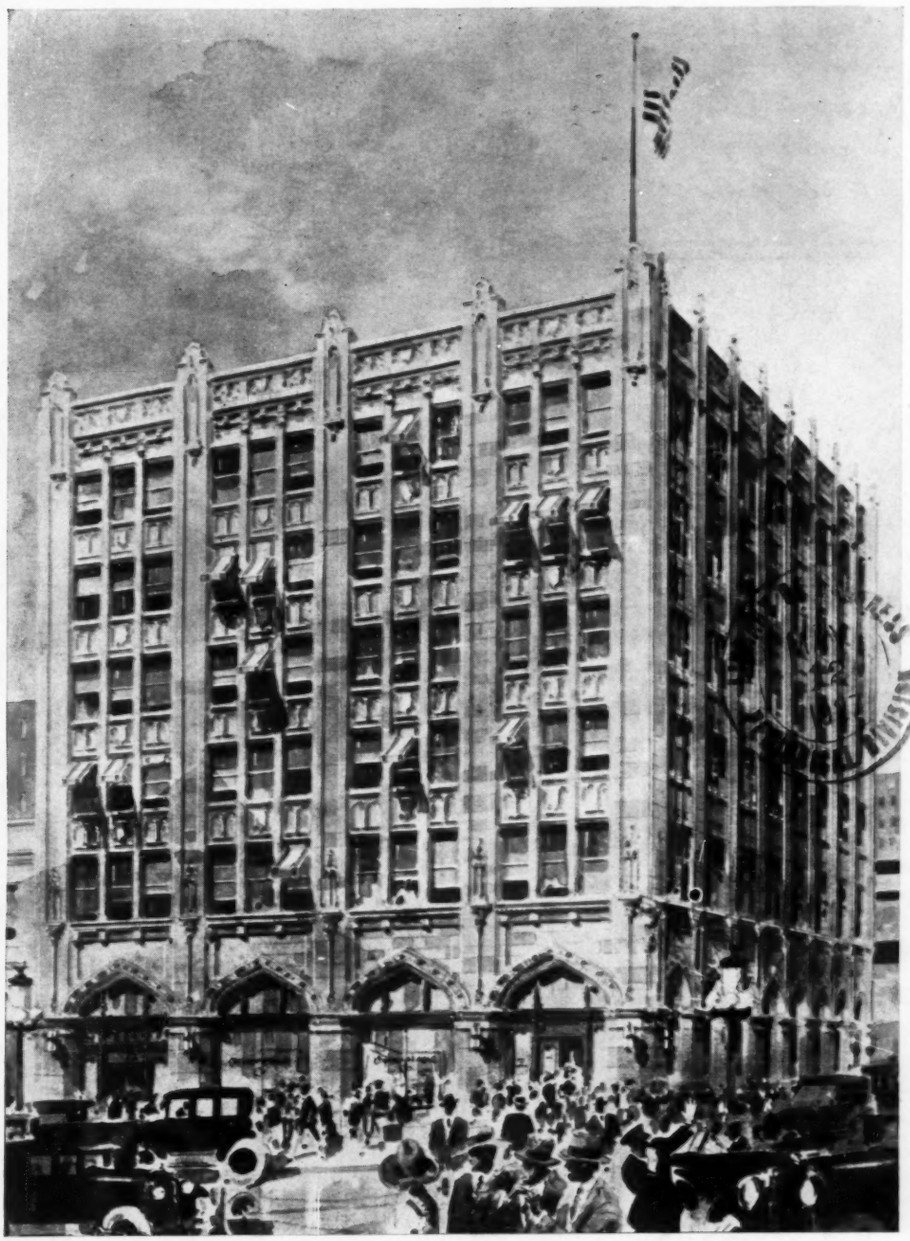
WESTERN GAS

May
1927

20 Cents
the Copy



As the artist visualizes the general office building proposed for the Oklahoma Gas and Electric Company. The utility's new home will soon rise on the Oklahoma City sky line.

A MONTHLY JOURNAL DEVOTED TO THE
WESTERN GAS & APPLIANCE INDUSTRIES

For Gas Lines

The valves that won't leak won't stick

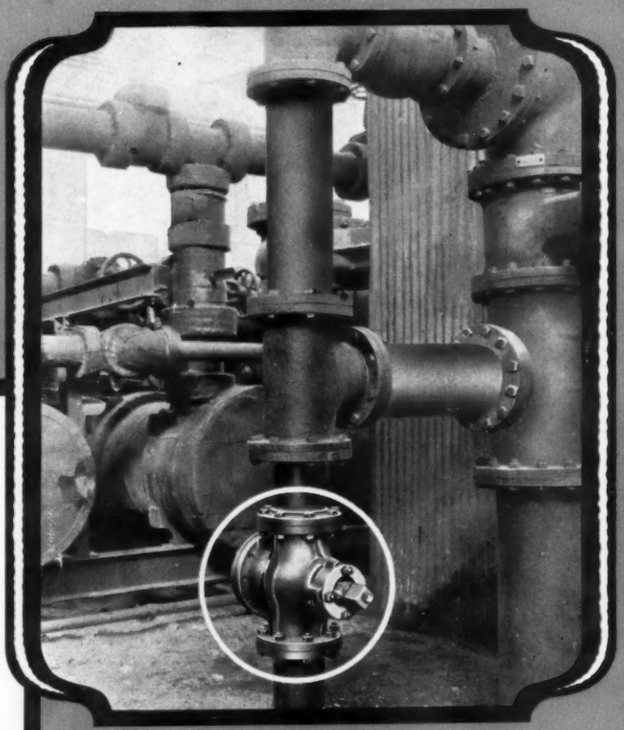
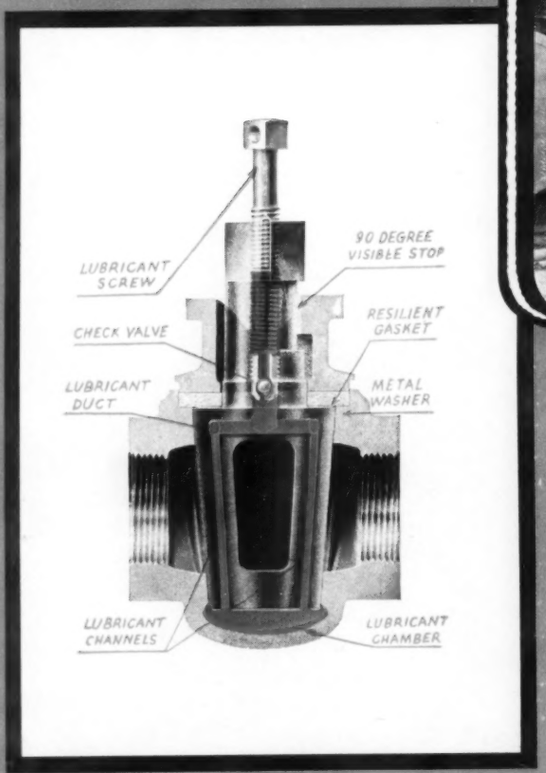


Photo shows installation of Merco Nordstrom Plug Valve on natural gas line that leads to boiler room.



DANGER of leakage is permanently eliminated by the use of these lubricated valves. Pressure (hydraulic principle) up to 2000 pounds per square inch prevents passage of any gas whatsoever from valve to outside. Quicker control—a quarter turn gives full closure from wide open.

A copy of our illustrated catalog will be forwarded upon request.

MERCO NORDSTROM VALVE CO.

SUBSIDIARY OF THE MERRILL CO.

Engineers—Manufacturers

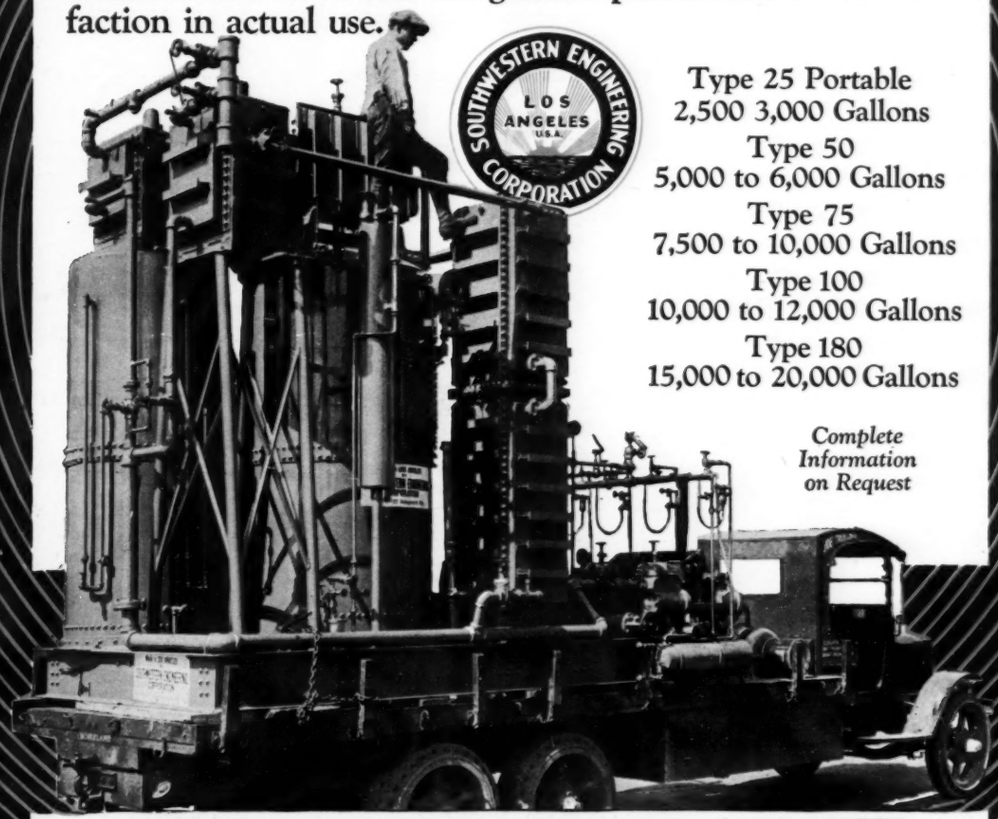
San Francisco, 121 Second St.
Chicago, Peoples Gas Building
Cleveland, Ohio, 525 Engineers Building
Western Factory: Oakland, California
New York, 11 W. 42nd St.
Houston, 1315 Petroleum Bldg.
New Orleans, 1501 Masonic Temple Bldg.
Eastern Factory: Belleville, New Jersey

AGENCIES IN PRINCIPAL CITIES

Merco Nordstrom PLUG VALVES

The Balanced Unit
SOUTHWESTERN
FACTORY BUILT
Absorption Plants

These plants are not assembled nor sold merely upon the performance or construction of a single piece of equipment or apparatus. They are built of well proportioned and efficient component parts to insure the utmost value in a balanced unit to render the greatest performance and satisfaction in actual use.



Type 25 Portable
2,500 3,000 Gallons
Type 50
5,000 to 6,000 Gallons
Type 75
7,500 to 10,000 Gallons
Type 100
10,000 to 12,000 Gallons
Type 180
15,000 to 20,000 Gallons

Complete Information on Request

SOUTHWESTERN ENGINEERING CORP.
1221 HOLLINGSWORTH BLDG.
Los Angeles, Calif.

Branch
Joplin National Bank Bldg.
Joplin, Missouri

Branches
Western Bldg., Amarillo, Tex.
Mayo Bldg., Tulsa, Okla.

and
90 WEST STREET, NEW YORK CITY

3593

WESTERN GAS

626 S. Spring Street,
Phone TUcker 8982
Los Angeles, Calif.

447 Sutter Street
Phone GArfield 5383
San Francisco, Calif.

Official Publication Of The
Pacific Coast Gas Association

Contents for May

Oklahoma Gas and Electric Company's Proposed Central Office Building ..... Cover

Where Peak Loads are Peaks 23
By H. L. Masser

Selling to Secure More Gas Sales per Domestic Consumer—to Build Load 25
By W. E. Derwent

The Railroad Shops of Sacramento Depend on Gas Fuel 26
By W. T. Mayer

The Cleaning of Natural Gas 28
By H. B. Milam

Use the Industrial Data Sheet to Win and Keep the New Consumer 29
By Edgar M. DeRemer

Loading the Company Lines with Gas Room Heaters in Tucson 30
By P. Drachman

Treating Recycled Gas Brings Profit to Plants in Seminole Field 31
By H. L. Greene

Cost Accounting Helps the Natural Gasoline Producer to Efficiency 32
By J. E. Hare and N. J. Allen

Pacific Coast Gas Association 34

Editorial 36

This Month's Patents Pertaining to the Industry 39

Natural Gas Gasoline Operations 44

JAY JENKINS, *Publisher*
GEORGE H. FINLEY, *Managing Editor*
H. ELLIOTT TAYLOR, *Associate Editor*
JAMES E. JENKINS, *Associate Editor*
CRAIG ESPY, *Advertising Manager*

Volume III **May, 1927** **No. 5**

Western Gas is published by Western Business Papers, Inc. at 626 South Spring Street, Los Angeles, California. Subscription price (in advance) 20 cents the copy; $2.00 per year; 3 years $5.00; $3.00 per year foreign. Entered as second-class matter June 1, 1925, at the postoffice at Los Angeles, California, under the Act of March 3, 1879.

Copyright, 1927, by Western Business Papers, Inc.

Western Gas *is fully protected by copyright, and nothing that appears in it may be reprinted without permission.*

Opening up trenches through pavement and loose rock. The CC Paving Breakers are operated from a 5½"x5" Portable Air Compressor.

This Equipment saves time and labor—

Speeding up jobs with Ingersoll-Rand Portable Air Compressor Outfits saves *both* time and labor.

On the work shown here, the compressor and two men with CC Paving Breakers did more than fifteen men with hand sledges and picks—a big saving of labor. A trench was opened through the pavement in less than one-half of the time required by hand methods—a big saving of time.

This company and thousands of others have found Ingersoll-Rand equipment a paying investment. Our booklet "100 and 1 Ways to Save Money with Portable Air Compressors" will show you how to make money with these machines.

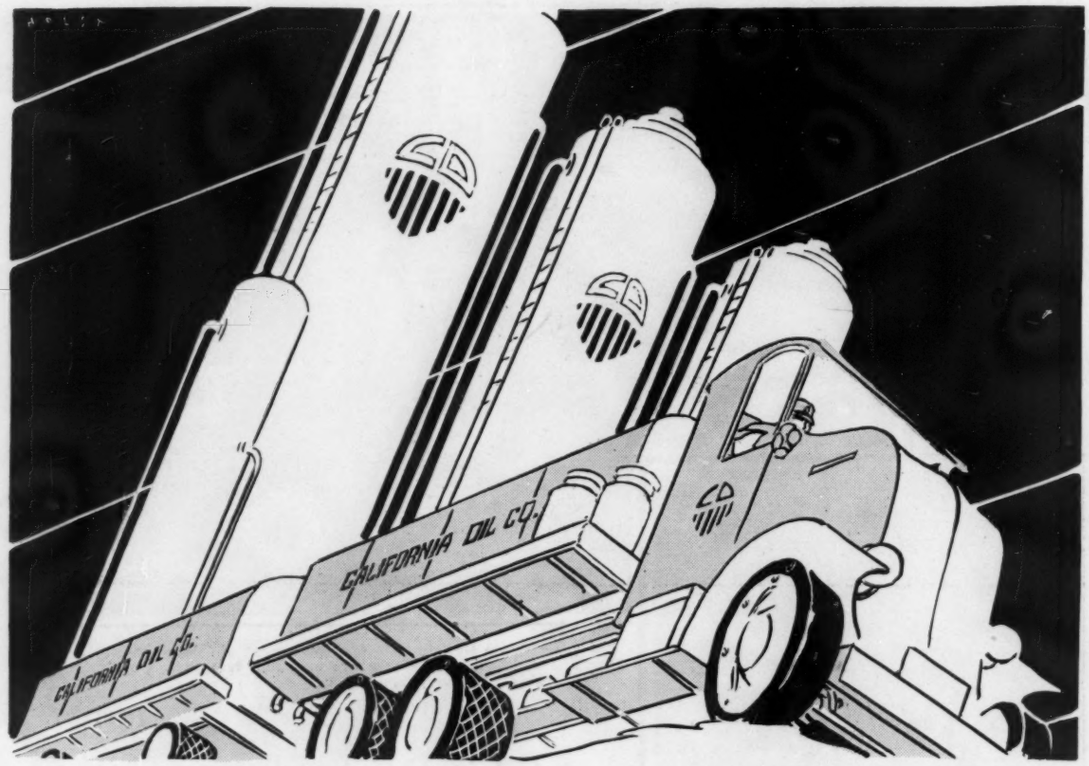
INGERSOLL-RAND COMPANY, 11 Broadway, New York, N. Y.

Offices in principal cities the world over.

Los Angeles, Cal. **San Francisco, Cal.** **Dallas, Texas** **El Paso, Texas** **New Orleans, La.** **Tulsa, Okla.** **Seattle, Wash.** **Salt Lake City, Utah**

112-PC

Ingersoll-Rand



The Standard of Quality

The super-loads that are a regular part of gas truck operation are bound to make severe demands upon the tire equipment. Economical operation demands tires of the highest quality, plus the very best obtainable in "after-application" service.

Goodyear Truck Tires are the answer to the first requirement, and the reputation which Truck Tire Service bears among local operators is your assurance of satisfaction from the standpoint of service.

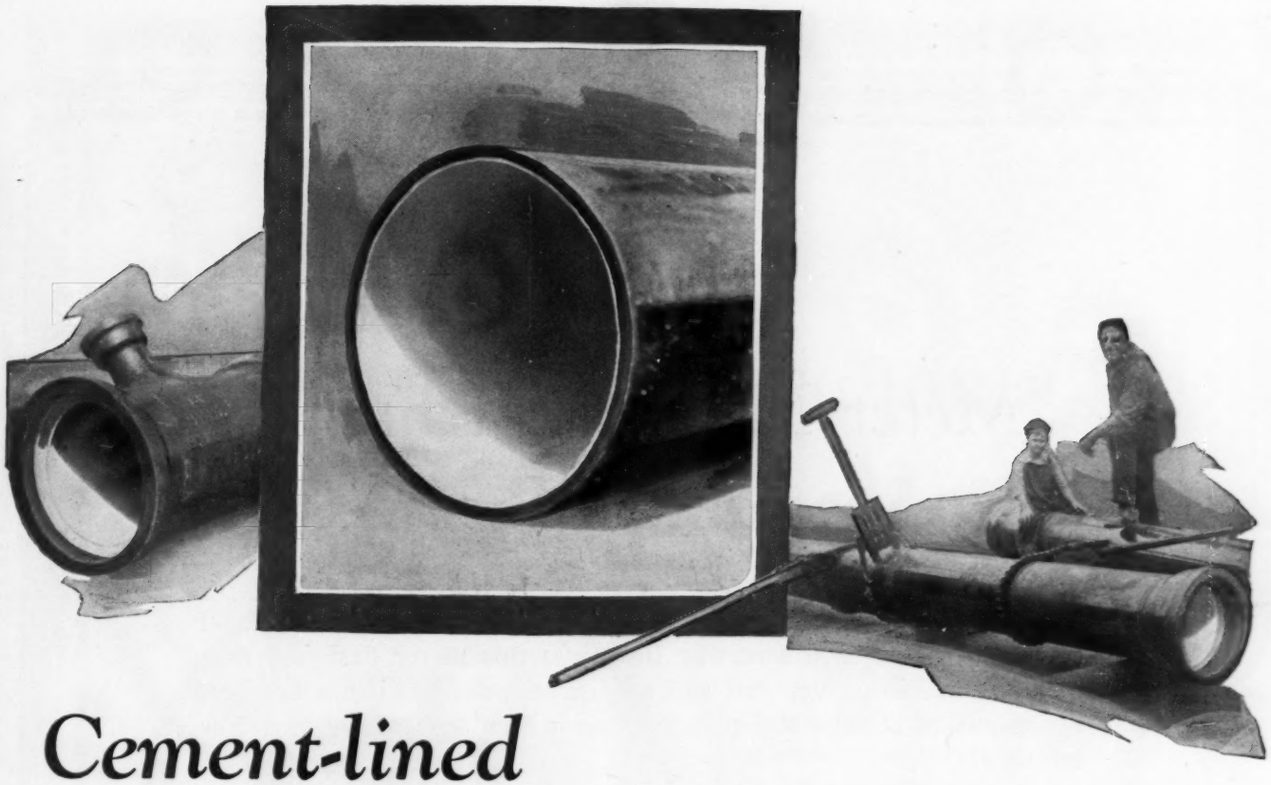
"A Tire for Every Need"

Truck Tire Service Co.

HOLLYWOOD
6523-Santa Monica Blvd.
Telephone HO-5524

LONG BEACH
220-East Anaheim
Telephone - 622-79

1244-East 8th Street — MEtropolitan 6391
LOS ANGELES CALIFORNIA

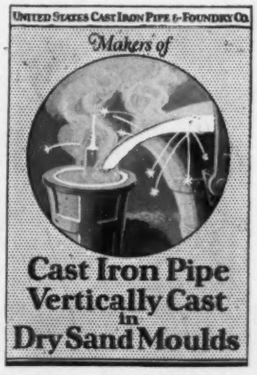


Cement-lined deLavaud Cast Iron Pipe

THE cement lining, when applied by the centrifugal method, is extremely dense and has a porcelain-like surface.

The lining adheres to the iron so tenaciously that the pipe can be cut or tapped without breaking the coating adjacent to the cut.

Moreover deLavaud centrifugal pipe, with its larger internal diameter, cement-lined by this method, has initially as great carrying capacity as ordinary pipe, nor is the flow reduced with age.



If you have any problem that involves the necessity of an absolutely non-corrosive pipe under all conditions, write to us for special literature covering the specifications, manufacture and uses of deLavaud centrifugal cement-lined cast iron pipe.

Write for details of the service we maintain for the assistance of Construction Engineers

United States Cast Iron Pipe and Foundry Company

General Offices:
Burlington, New Jersey

SALES OFFICES

Philadelphia: 1421 Chestnut St.
Chicago: 122 So. Michigan Blvd.
Birmingham: 1st Ave. & 20th St.
Buffalo: 957 East Ferry Street
Cleveland: 1150 East 26th Street
New York: 71 Broadway
San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
Dallas: Akard & Commerce Sts.
Kansas City: 13th & Locust Sts.
Minneapolis: 6th St. & Hennepin Ave.

Meter Manufacturing— a Specialized Business

OUR standard dry meter is modeled after the original Glover type. On such scientific lines was this meter designed that, despite some improvements and modifications since, it has not been expedient to change the principle on which this meter was constructed.

A "Pacific" product must possess above all three qualities—*dependability, accuracy and economic cheapness.*

Dependability is placed first from the fact that accuracy must stand or fall with the dependability of the apparatus. Economic cheapness is necessary from the viewpoint of the gas company, as in its eyes the meter produces nothing, earns nothing, though playing a most important and necessary part in its position as cash register.

A highly specialized business indeed is that of meter fabrication. The manufacture of meters, like that of clocks, is a specialty trade—*and the meter can be made only by specialists and experts.*

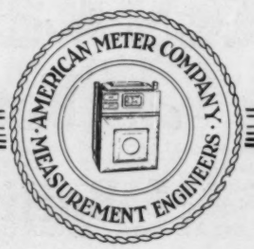
Pacfic Meter Works

of the
American Meter Company, Inc.
Northwestern Representative

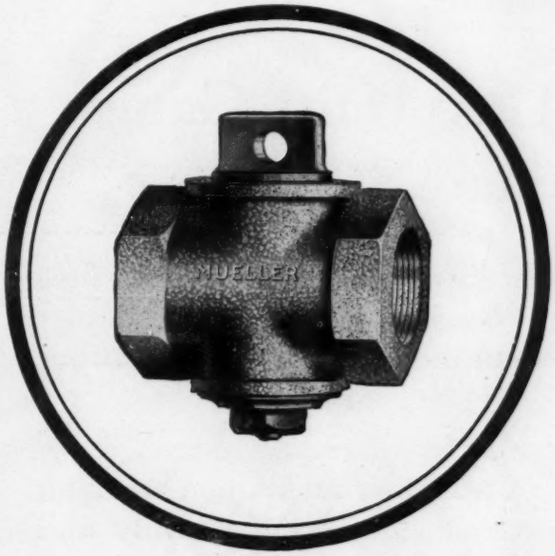
SAN FRANCISCO
495 Eleventh St.

PORTLAND
Northwestern Gas and Electric Equipment Co.

LOS ANGELES
2118 Atlantic St.



Let's stop
this vicious "economy!"



Mueller Iron Body Gas Stop. No. G. 11100

HOW much did your company spend in the past five years replacing gas stops that failed because they weren't made of materials that stand up? Buying these stops showed as an economy on one ledger—but proved an appreciable loss on another ledger!

Hundreds of successful companies now know the real economy that comes with the use of dependable, long-lived Mueller Iron Body Stops ***with keys and washers of red brass.***

The dissimilar metals, ground with Mueller accuracy, form a gas-tight seal, and assure smooth, positive operation under all conditions. The compactly designed bodies are of first quality gray iron, made with extra heavy walls and given the additional protection of heavy galvanizing.

Make Mueller Stops the first your men install and they'll prove to be the last that the men have to install! Ask for prices!

MUELLER CO. (Established 1857) Decatur, Illinois
San Francisco: 1072-76 Howard St. 2468 Hunter St., Los Angeles
Canadian Factory: MUELLER, Limited, Sarnia

MUELLER

DEPENDABLE BRASS FITTINGS

372

Reg. U. S. Patent Office

Protect Your Gas Main Gangs With Goodman Stoppers

In modern industry, the safety of the workmen is the first consideration, and there is no work in which their safety must be more carefully protected than the changing and repairing of gas mains.

For thirty years, gas companies, here and abroad, have used Goodman Stoppers to protect their men when working on mains. Goodman Stoppers can be wedged firmly and tightly in the pipe, and then locked in position by the new locking sleeve, thus making the shut-off still more effective.

Goodman Stoppers will protect your men from the slightest possibility of danger, so that they will be able to work with perfect confidence.

Safety Gas Main Stopper Co.

523 Atlantic Avenue *Brooklyn, N. Y.*

Cable Addrress—Gastopper, N. Y.

Pacific Coast Representative—C. B. Babcock Co., 135Bluxome St., San Francisco, Calif.

LESS COST

BRAUN HEAT EXCHANGERS

C·F·BRAUN & CO·MANUFACTURING MECHANICAL ENGINEERS

ALHAMBRA, CALIFORNIA

NEW YORK·DALLAS·TULSA

Look at this temperature chart and see for yourself that that heat of a Gas-fired tempering oven is uniform —then read this letter.

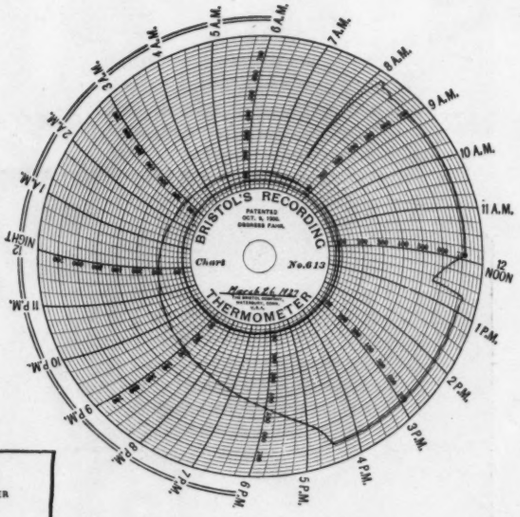


Chart taken from the temperature recorder of one of the Gas-fired ovens of the Premier Bed and Spring Company, San Francisco.

President and Manager
P. F. MALLEY

Vice President A. P. BREWER
Secretary, R. B. HOSNER

Premier
Bed and Spring Co.

5700 Third Street
SAN FRANCISCO
Telephone Atwater 1412

April 7, 1927

Pacific Gas & Electric Co.,
445 Sutter St.,
San Francisco, California.

Gentlemen: Attention Mr. R. Trowbridge

We are more than pleased and satisfied with our present gas fired equipment and its thermostatic control. We are now planning on a still larger unit to handle our assembled bed springs, bed and hammock frames.

Through the use of gas fuel and the ease with which it is controlled, we easily obtain the finer point of temperature so important in our temering operations This exact temperature remains uniform. No watching or attention is needed.

Gas fulfills our requirements of cleanliness for were it not clean it would discolor the grey enemel on our springs.

Increased production and absolute uniform product have completely sold us on the use of gas fuel in our work.

Yours very truly,
PREMIER BED & SPRING CO.
By Barth Allsing

MANUFACTURERS OF
BED SPRINGS
COIL and LINK

TWINFOLD DAY-BEDS
COUCH HAMMOCKS
FOLDING COTS
AUTO BEDS

LOS ANGELES
WAREHOUSE
1001 E. FIRST STREET

SEATTLE, WASHINGTON
WAREHOUSE
1980 RAILROAD AVE.

PORTLAND, OREGON
WAREHOUSE
13TH AND EVERETT STS.

PACIFIC GAS AND ELECTRIC COMPANY
P·G·and E·
Owned · Operated · Managed
by Californians

IF IT'S DONE WITH HEAT, YOU CAN DO IT BETTER WITH GAS

Become "Gas Heating Headquarters" in your town

Most heating appliance salesmen are at a disadvantage in talking to builders who realize that the salesman is trying to sell his one particular appliance regardless of whether or not it fits the job. As a Pacific representative your suggestions are unbiased because you have every type of heating appliance and can recommend the one best suited to the particular job. As a Pacific Heating Engineer you can get in on every job in your territory.

Backing you is the 14 year old reputation of Pacific — the leading and largest gas heating organization of the West.

Unless you are selling eight different types of heating appliances—you are losing out on a lot of profitable business!

In every territory where we have established "Pacific Gas Heating Headquarters" the Pacific dealer has jumped into immediate leadership.

—because with the complete Pacific line every possible heating requirement can be supplied.

Why confine yourself to one or two heating specialties? Get into the business right. Put in the complete Pacific line and get in on every job. As a Pacific heating Engineer you can give unbiased heating counsel because you have every type to sell. Every Pacific appliance you sell is guaranteed—backed by the largest heating organization in the West.

Over 200,000 satisfactory installations are advertising Pacific appliances all over the West. We have a real money-making business proposition to make you if you will write us for it now.

Pacific Gas Radiator Company

Gas Heating Headquarters

Factory at Roseberry and Walter Sts., Huntington Park.
Los Angeles Agency—Pacific Gas Heating Co., 1732-40 West Washington St., Los Angeles, Phone BEacon 2190

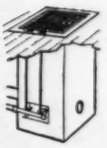
Gas-Steam Radiators

Dual Pipeless Furnaces

Wall and Fireplace Heaters

All Vented for Healthful Heat

Gas Radiators—Pressed Metal and Cast Iron



Pipeless Floor Furnaces

Unit Basement Furnace Systems

Manufacturers of Every Type of Gas Heating Appliance

Write for prices and complete information on this TEEPLE *Thermostat*

The TEEPLE

is the original simple, low priced, room temperature thermostat

Over 10,000 TEEPLE room temperature thermostats are in use on the Pacific Coast. Simple in design, they combine accuracy and permanent reliability

The large number of installations made during the past few years is the best proof of the widespread demand for the TEEPLE thermostat, and its popularity with home and building owners.

Quantity production has brought the price of TEEPLE controls down to a point where sales are largely a matter of suggestion.

We also manufacture magnetic gas valves and complete equipment for the automatic control of gas, steam, hot water, air, oil, or electric heating systems or for refrigeration control.

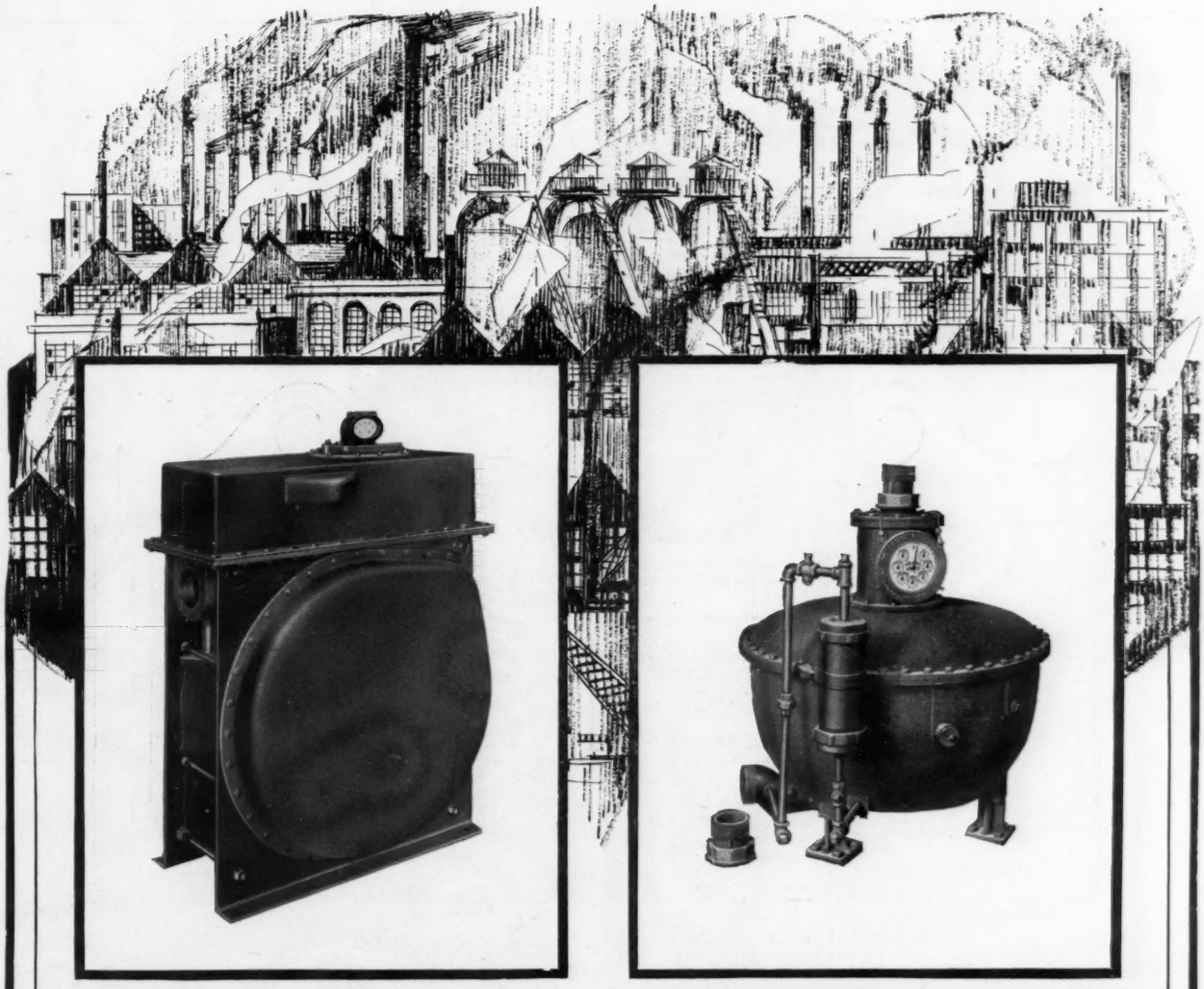
Write us concerning your temperature control problems—we design and manufacture special equipment.

L. R. TEEPLE COMPANY [*formerly* TEPCO *Mfg. Co.*]
540 East 9th Street , , , , Portland, Oregon

TEEPLE TEMPERATURE *Controls*

TEEPLE

Pacific Coast Distributors for Honeywell Heating Specialties Co



EMCO No. 5 WESTINGHOUSE IMPROVED FLUID POSITIVE

FOR INDUSTRIAL SERVICE

The EMCO No. 5 Dry Gas Meter is built to measure large capacities of gas as well as small. This meter will measure 10,000 cu. ft. per hour with the same exactness as it will much less volumes. The pressed steel construction has made possible a meter of remarkable strength and lightness. Durability is assured because of its ruggedness, and danger of any injuries is eliminated. Compactness is another feature. Less than four sq. ft. of floor space is required for the EMCO No. 5.

The Westinghouse Fluid Positive Gas Meter has enjoyed for many years the reputation of being an accurate meter and one which seldom needs repairs. Being constructed entirely of metal the meter is practically indestructible. There are no parts to become disintegrated and the metal is not in any way impaired by the action of the gas. The working parts are practically in equilibrium and the meter is therefore extremely sensitive on large as well as small volumes of gas.

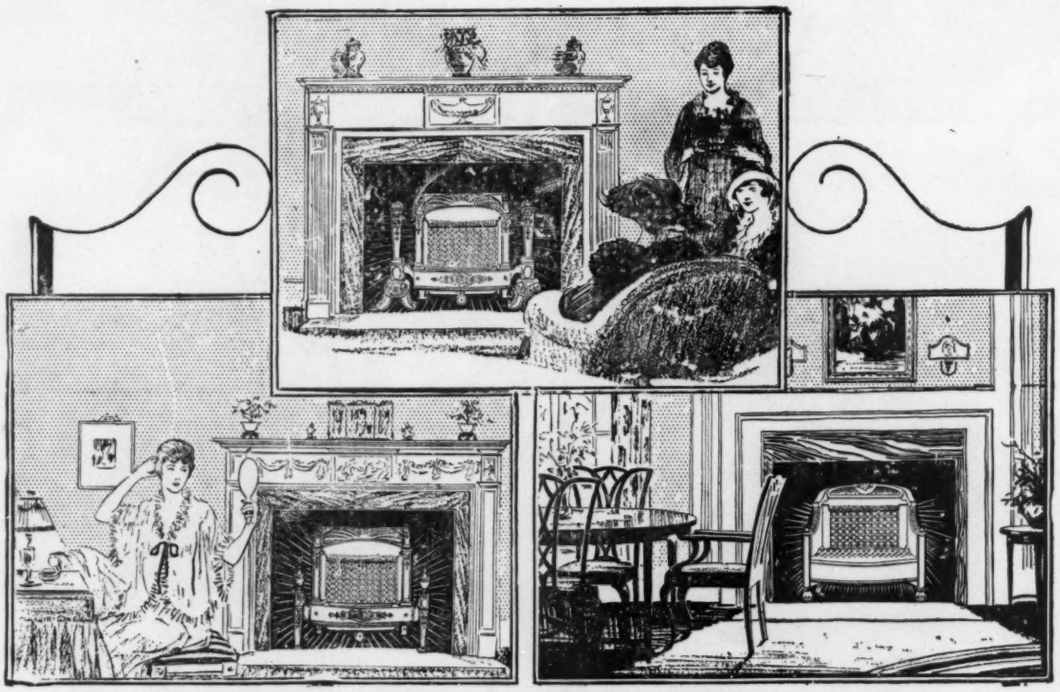
PITTSBURGH EQUITABLE METER CO.

Pittsburgh, Pa.

J. H. Hill, District Manager **Union Bank Bldg.** **Los Angeles, Cal.**

Which Leads to Greatest Profits?

Summer is coming. Two courses are open to you with regard to the Humphrey Radiantfire:



1. VIGOROUS SELLING, BACKED BY SPECIAL INDUCEMENTS—PROFIT-MAKING ACTIVITY!
2. WAIT-TILL-WINTER-COMES-AGAIN—PROFIT-LESS INACTIVITY.

We shall be very glad to go over the Summer Sales problem with any Radiantfire dealer, and suggest methods of activity which will lead to increased Summer Sales . . . and Fall and Winter sales also. A note to us will bring prompt response.

TESTING LABORATORY AGA APPROVED

The HUMPHREY

Radiantfire

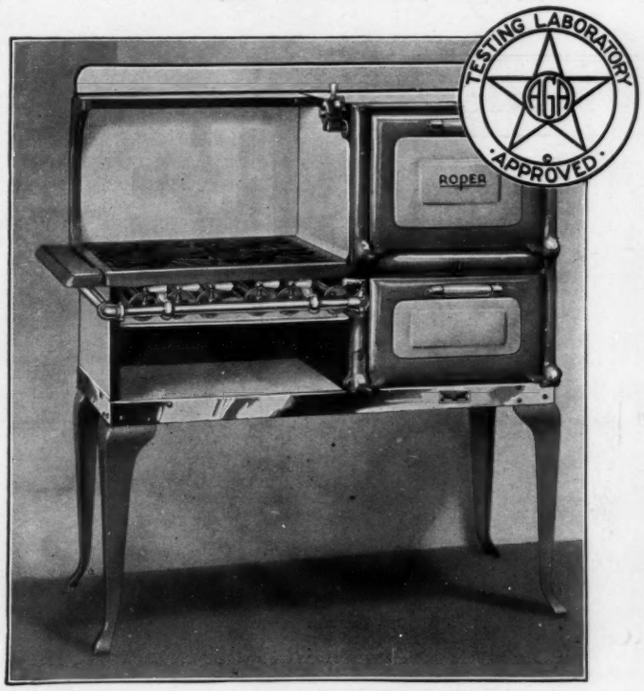
REGISTERED TRADE MARK

Manufactured by
General Gas Light Company
Kalamazoo, Mich.

C. B. Babcock
Pacific Coast Representative
135 Bluxome Street, San Francisco

The new ROPER LINE

steps far ahead of all past gas range values



Matchless quality—striking beauty—values never before approached—selling features in abundance—the new Roper line has them all. There's quick turn-over and good profit in this group of fine ranges. Get the new Roper catalogue and see this wonderful line in its entirety. Roper advertising and merchandising service is complete and ready for your use. Write us.

Capture Home Heating Sales With the Roper Gas-Fired, Warm Air Furnace

You can't afford to overlook the big opportunities now open for selling gas fired furnaces. Home owners are awakening to the convenience and satisfaction of gas heating. The Roper furnace will help you get this business—and keep your customers permanently satisfied. Get the Roper Furnace catalogue and data book and go after these profitable sales now.

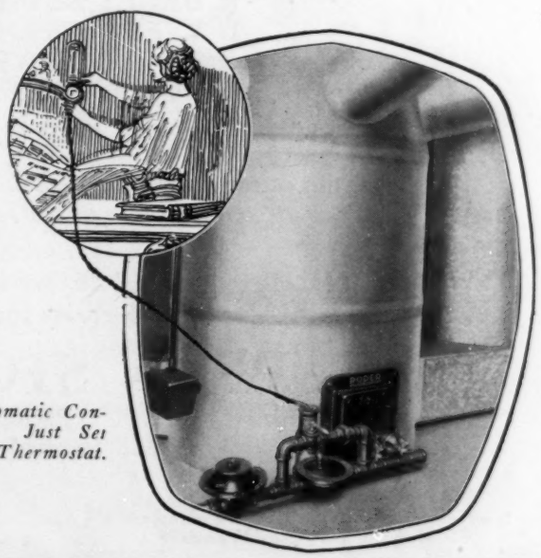
GEO. D. ROPER CORPORATION,
Rockford, Ill.

Pacific Coast Branch:
135 Bluxome St. San Francisco, Calif.

ROPER

TRADE MARK REG.U.S.PAT.OFF. REG. IN CANADA

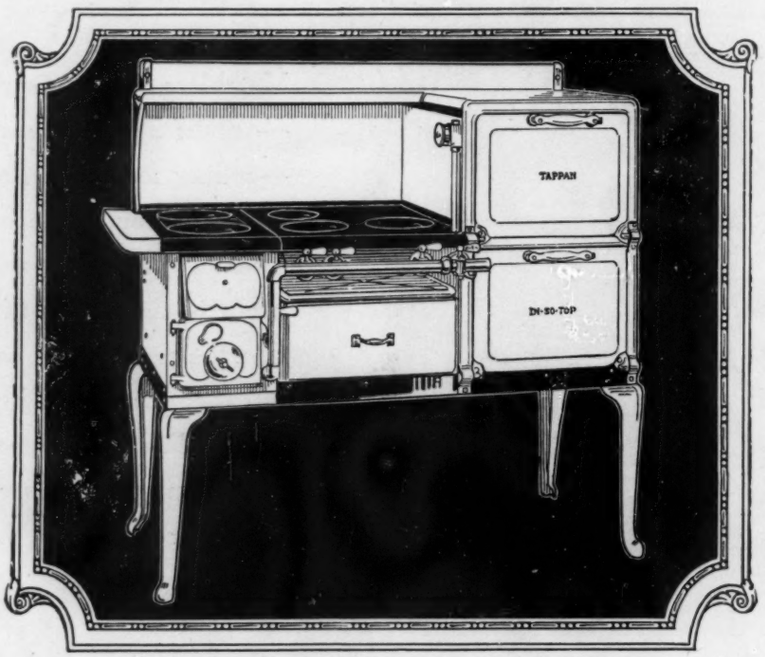
GAS RANGES
GAS FURNACES



Automatic Control. Just Set the Thermostat.

BE SURE THE ROPER PURPLE LINE AND THE ROPER COMPLETE OVEN CONTROL ARE ON THE GAS RANGE YOU SELL

1
Strong Selling Point



One feature the TAPPAN has—one truly great feature—which other gas ranges sold on the Coast have not—AN INSULATED OVEN.

It SAVES FUEL
It BAKES BETTER
It KEEPS KITCHENS COMFORTABLE
It HOLDS HEAT IN THE OVEN
It MAKES COOKING EASIER

—AND TAPPAN ALONE HAS IT — THE INSULATED OVEN

Besides, of course, every desired modern feature that women expect to find on gas ranges, such as an oven heat control, stainless solid cooking top, automatic lighter, and so on.

TAPPAN dealers are capitalizing this ONE strong selling point to make SALES. Perhaps the TAPPAN will make sales for YOU. For franchise information write now to

TAPPAN STOVE COMPANY

Pacific Coast Office
665 Howard Street—San Francisco

H. R. BASFORD COMPANY
Direct Factory Representatives
Northern California—Nevada—Hawaii
665 Howard St.—San Francisco

H. R. MAYER
Direct Factory Representative
Southern California—Arizona
1001 East First St.—Los Angeles

The Longest natural gasoline pipe line in the WEST

*Straight up for 1,009 feet at a 55° angle.

100 MILES of 4-inch and 6-inch American Seamless Slip-Joint Line Pipe

The 100-mile natural gasoline transmission line, built by the Shell Company of California and extending from its plant in Ventura, California, to the refinery at Wilmington, is a significant tribute to American Seamless Slip-Joint Line Pipe.

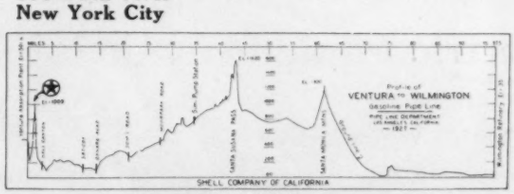
The line consists of 85 miles of 4-inch pipe, the balance being 6-inch. Joints average 40-feet in length, giving an economical welding total. The lightness of the pipe facilitated speedy handling throughout. No difficulty was experienced in welding the high carbon steel.

Two mountain ranges were crossed with this line: one at Santa Susana Pass, elevation 1,650 feet; and the Santa Monica Mountains, elevation 1,300 feet. Some idea of the difficulties encountered may be gained by reference to the illustrations, and the profile of the line, reproduced here.

AMERICAN SEAMLESS TUBE CORP. OF CALIFORNIA
PETROLEUM SECURITIES BUILDING
LOS ANGELES, CALIFORNIA

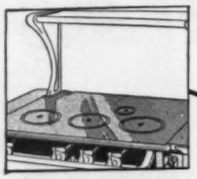
535 Fifth Ave.
New York City

1211 Neils Esperson Bldg.
Houston, Texas

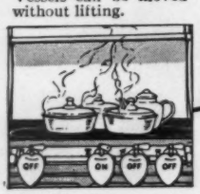


For speed, economy, strength and longevity American Slip-Joint Line Pipe has no equal. It has many distinct advantages in handling, laying, welding and wearing. Ask us for complete data.

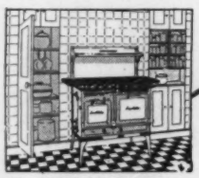
When this Line Was Built the Best Pipe Was Essential



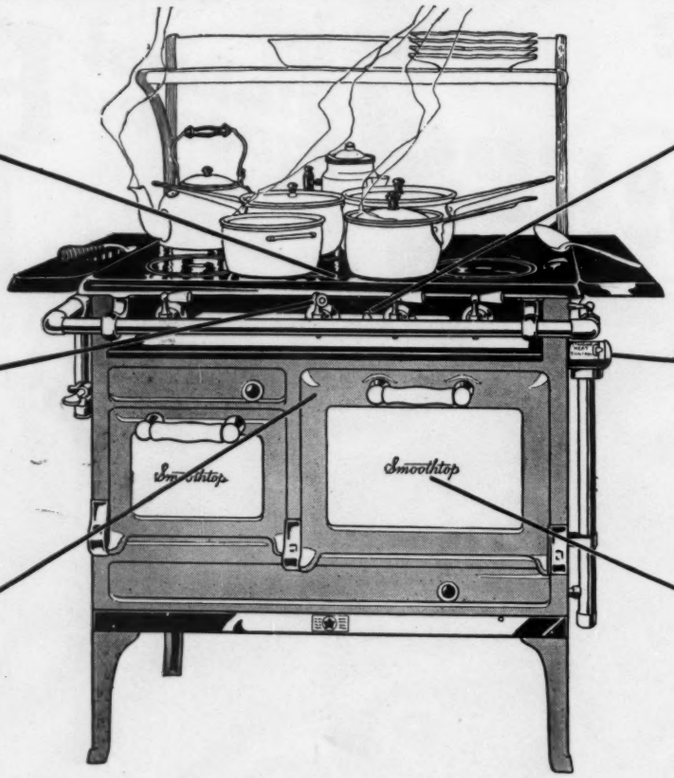
Convenient, broad, smooth, enclosed top, holds 6 or 7 vessels. Vessels can be moved without lifting.

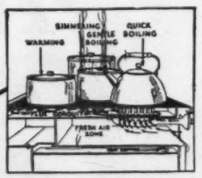


An entire dinner can be cooked over one burner, and then kept hot until served.

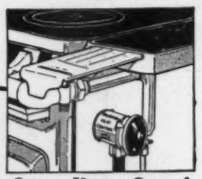


Beautiful, it improves the appearance of any kitchen. Its compactness saves space.

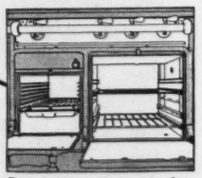




Four heat zones—quick boiling, gentle boiling, simmering and warming, all from one burner!



Oven Heat Control enables you to cook without watching. Let the Smoothtop cook while you're away.



Large capacity, evenly heated oven, that akes perfectly, and the newest type of broiler.

What Have You to Sell to the Mrs. Browns?

MRS. BROWN is typical of a large and growing number of alert women known as "style leaders." They are the first to buy new styles in apparel; their homes strike a new note because of modern furnishings; they are the ones who buy stylish motor cars; they were the first to buy electric washing machines, ironers and refrigerators. They are your best prospects for gas fired boilers—and SMOOTHTOP RANGES.

When the Mrs. Browns buy new gas ranges they don't want merely a new old style range. They want a range that is in keeping with their ideas of up-to-dateness, smartness and efficiency. Here is where SMOOTHTOP has a place in your merchandising plan that no other range can fill.

SMOOTHTOP was designed especially for the Mrs. Browns. It is smart, new and entirely different in appearance from conventional ranges. It has all the latest improvements, including Oven Heat Control and many others exclusively its own (see above illustration). It makes cooking carefree and effortless and shows gas cooking service at its best.

If you are not selling SMOOTHTOPS you are overlooking a mighty profitable market. Ask us for further information about it.

Northwest Gas & Electric Equipment Co.

Pacific Coast Distributors,
Standard Gas Equipment Corporation

372 Pittock Block, Portland, Oregon.

180 New Montgomery St., San Francisco, Calif.

164 So. Central Ave. Los Angeles, Calif.

JEWEL STOVES AND FURNACES
DETROIT STOVE WORKS
LARGEST STOVE PLANT IN THE WORLD

JEWETT

MAGEE

Monarch MALLEABLE

YORK ABENDROTH

ERIEZ

STOVES SUMMIT RANGES FURNACES

PEERLESS

T TAPPAN

SPARK

RED CROSS RANGES & FURNACES

Crawford Gas Ranges

ANDES

Paramount MALLEABLE

THERE are 3 outstanding features in the Wilcolator Oven Heat Control that recommend it strongly to the retailer in gas ranges and commercial representatives of gas utility corporations. These are:

1. Wilcolator equipped ranges give more value per dollar of price.
2. Wilcolator equipped ranges increase the consumption of gas through greater use.
3. Wilcolator equipped ranges will stimulate replacement business.

Send requests for more specific data to Dept. 4 at the address below. No obligation is involved.

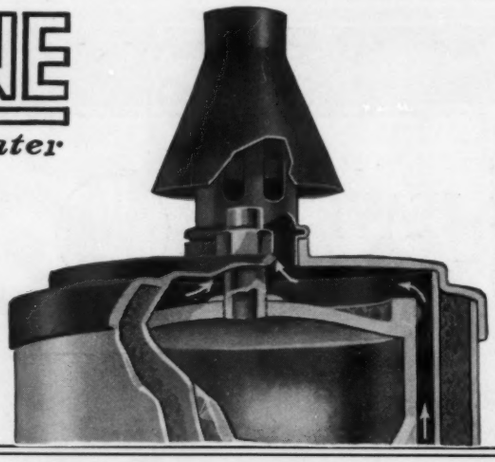
THE WILCOLATOR COMPANY

17-23 Nevada Street **Newark, N. J.**

WILCOLATOR

OVEN HEAT CONTROL

HOTZONE
Self Action
Storage Gas-Water Heater



Quality In Every Detail

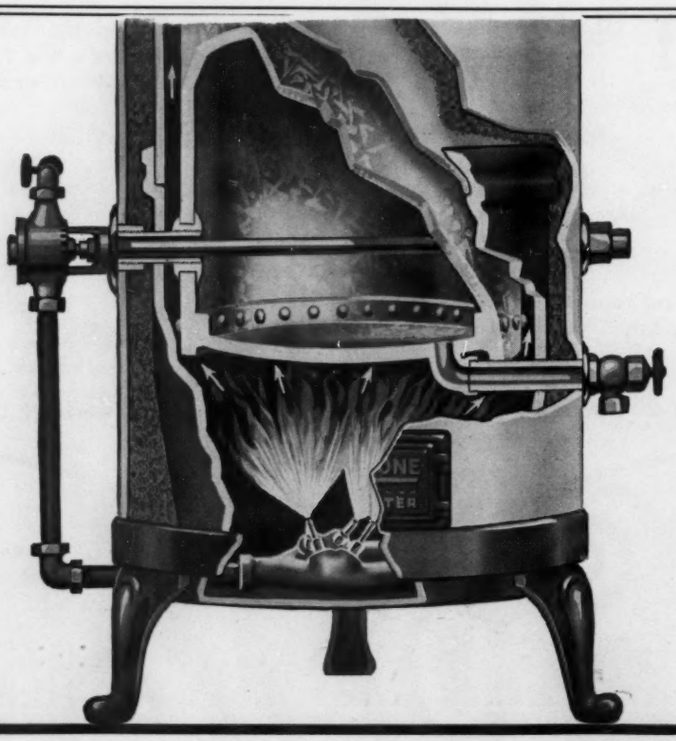
assures quality performance. From the extra-heavy tank, tested to a pressure of 300 lbs., to the thoroughly proven and tested thermostat, the Hotzone is a product worthy of the best efforts of any gas company. Sales records are being broken—YOU should be selling Hotzones. May we send you convincing proof and prices?

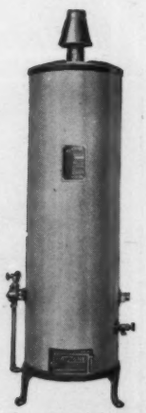
WELSBACH COMPANY

Member National Gas Association
Member American Gas Association

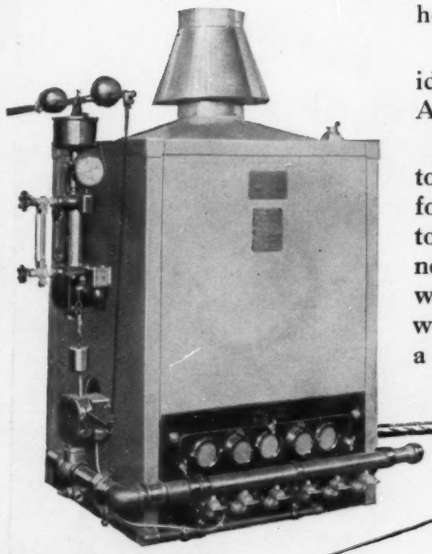
GLOUCESTER, N. J.
Branches in Principal Cities

San Francisco Office
863-865 *Mission Street*





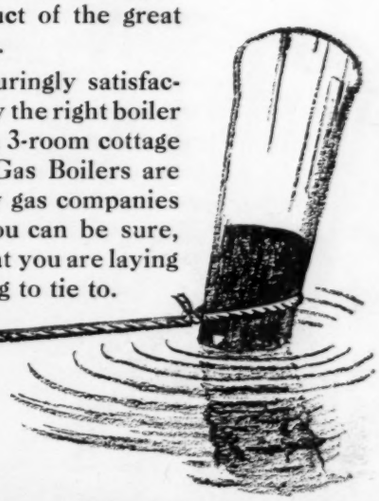
SOMETHING TO TIE TO



The first essential of a successful house-heating campaign is the right heating boiler.

When you select Ideal Gas Boilers you identify yourself with a product of the great American Radiator Company.

Ideal Gas Boilers are enduringly satisfactory. In the Ideal line is exactly the right boiler for every heating job—from a 3-room cottage to the largest building. Ideal Gas Boilers are now being widely adopted by gas companies which push house-heating. You can be sure, when you sell Ideal Boilers, that you are laying a sound foundation—something to tie to.



The very name helps you sell—

IDEAL GAS BOILERS

The American Radiator Company and its Ideal Boilers are known favorably by every prospective customer you have. They are known more intimately by every architect, contractor, and tradesman you will want to deal with in selling gas boilers.

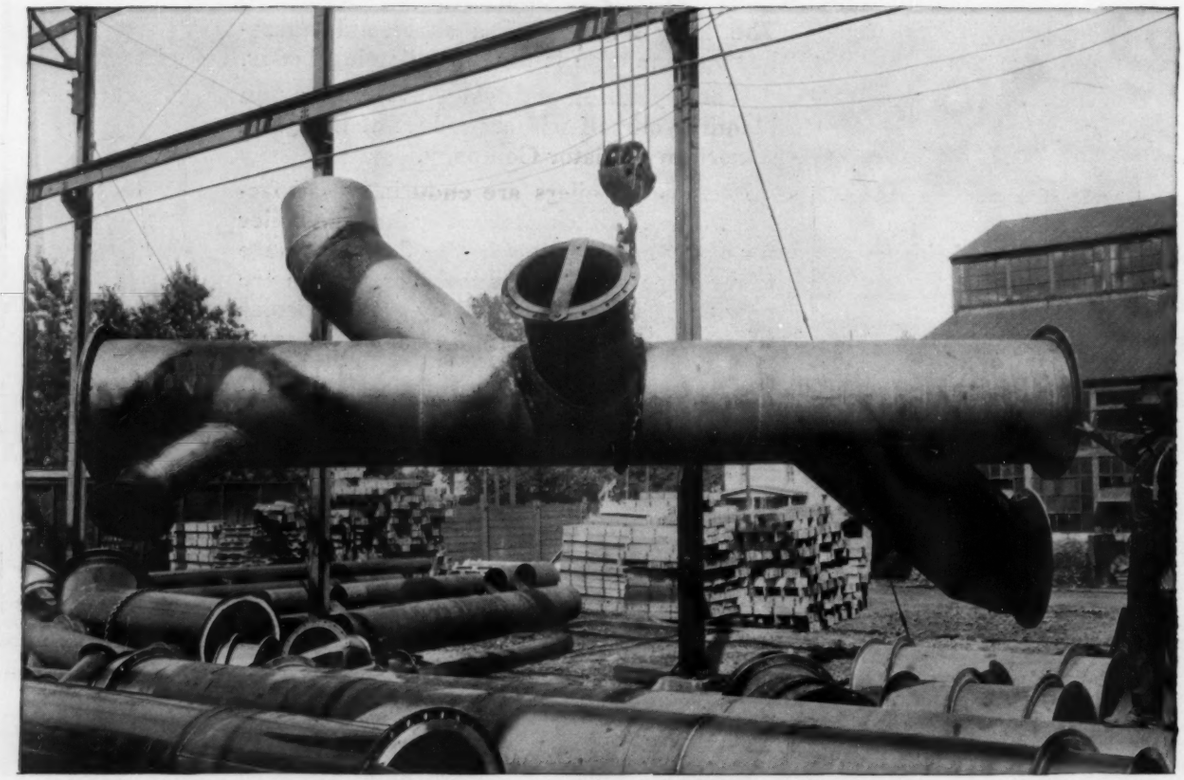
Years of leadership in developing better heating equipment, years of intensive advertising, have made the name "Ideal" extremely valuable to anyone selling heating equipment. It will help *you* when you sell Ideal Gas Boilers.

AMERICAN GAS PRODUCTS CORP.
376 Lafayette Street, New York City
Distributor

IDEAL GAS BOILERS

Steere Steel Pipe and Fittings

GAS WATER STEAM AIR



Our method of fabricating pipe and eliminating unnecessary joints and fittings—

Greatly reduces the first cost.
Speeds up and simplifies field erection work.
Simplifies the supporting structure and
Results in a better looking job.

The Combination Fitting shown in the cut was selected from a shipment to the Pawtucket Gas Company on order from Stone & Webster, Inc., of Boston. It is typical of what can be accomplished.

We guarantee the accuracy of all dimensions.
Every piece is tested for strength and absolute tightness.
Flanges are the famous Van Stone type with cast steel rings.
A better product cannot be produced for the purpose.

Our service is complete from the design to the field erection.

We Know We Can Save You Money

SEMET-SOLVAY
ENGINEERING CORPORATION
Division Allied Chemical and Dye Corp.
40 RECTOR ST. NEW YORK

WESTERN GAS

A Monthly Journal of the Gas, Gas Appliance and Natural Gasoline Industries in *Western America*

Where Peak Loads are *Peak's*

Peak Ratio *of* Five *to* One Demands Heavy Gas Plant Investment

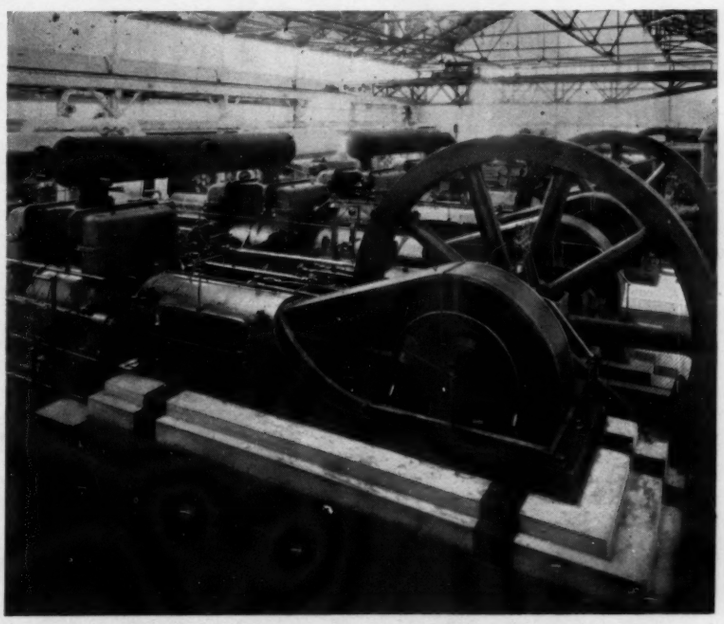
By H. L. MASSER

Gas Engineer, Los Angeles Gas and Electric Corporation

LOS ANGELES doubtless presents one of the most outstanding examples of the tremendous investments which must be made in gas plants, in order to supply the very heavy demands which may occur for but a very few hours each year. Much has been written recently by eastern operators regarding the most suitable types of plants for base load and for peak load, but few of these writers have any conception of the fluctuations of load which must be taken care of in this locality. Most of these easterners consider winter peak sendouts of 50,000 M.c.f. of 550 B.t.u. gas a good day's work, while in summer, their demands may drop to 20,000 to 25,000 M.c.f. In this Southern California climate, we cannot be content with any such commonplace conditions as these. On December 23, 1926, Los Angeles Gas and Electric Corporation experienced its maximum day's sendout, amounting to 147,055 M.c.f. of mixed gas, while this coming summer we anticipate our load will drop to about 27,500 M.c.f., thus showing a ratio of over 5 to 1. This condition has been exaggerated to some extent by the recent change to natural gas, as during all peak winter loads, great quantities of oil gas must be made to compensate for the insufficiency of the natural gas supply.

The primary reason underlying these extreme fluctuations is the fact that in the Los Angeles district, gas is the universal fuel for all domestic heating, as well as cooking purposes. If eastern companies could supply the entire potential domestic fuel demand, their load factor would be even worse than ours because of the severity of their climate. Because of the fact that, in the east, solid fuel is generally cheaper than gas, it is difficult for a company to procure very extensive house-heating loads. However, if they should be successful in acquiring such business and supply it with coal gas, the plant investment would become tremendous and unquestionably necessitate higher rates for winter service, as are now in effect in Cleveland, where the rates per M.c.f. increase with the quantity used.

Prior to January 25, 1927, Los Angeles was supplied with mixed, natural and manufactured gas of 50%—50% ratio, having a standard heating value of 850 B.t.u. In winter, the manufactured gas constituent was produced from oil, while in summer, the gas was manufactured by cracking natural gas. This provided a very satisfactory and economical service. The plant of the Los Angeles Company has a maximum rated capacity of 95,000 M.c.f. of oil gas per day. In the summer, this plant has been producing only about 15,000 M.c.f. of 600 B.t.u. gas per day, while for winter loads, the plant is forced to the utmost during hours of heaviest demand. This means that with our poor load factor, we have in the neighborhood of 60,000 M. of plant capacity which is idle six months or more of the year. Also, under such variable conditions, operating problems and costs increase rapidly, and because of the fluctuation of operating conditions, it is no exaggeration to



A corner of the Los Angeles Gas and Electric Corporation's high pressure compressor room in the Ducommon Street gas works. Each compressor unit shown pumps 1,000,000 cu. ft. per hour at 60 pounds discharge

TABLE NO. 1. HISTORICAL PEAK DAY SENDOUT STATISTICS

Year	Date of Peak Sendout	Peak Sendout M. c. f.	B. t. u. Average Value	Ind. Act. Meters Jan. 1st	Total M² B. t. u Sendout	Mean Temperature	Peak Say Send-out per Meter M.-B. t. u.	Peak Say Send-out per Meter Cu. Ft.	For Month of January Sales M. c. f.	For Month of January Sendout M. c. f.
1919–20	1- 8-20	37,123	767	152,442	28,470	48°	165.8	243.7	760,455	879,837
1920–21	1-11-21	52,296	716	165,798	37,450	48°	225.9	315.5	1,008,396	1,299,945
1921–22	1-20-22	70,651	625	187,432	44,150	42°	235.7	377.0	1,385,815	1,608,563
1922–23	2- 1-23	100,823	699	218,595	70,550	42°	322.3	461.4	1,506,949	1,732,376
1923–24	1- 2-24	99,825	840	265,174	83,850	45°	316.0	376.0	1,729,328	2,036,069
1924–25	12-24-24	105,498	820	290,338	86,550	48°	297.8	363.5	2,087,820	2,254,664
1925–26	1-21-26	90,497	858	306,844	77,650	55°	253.1	295.0	1,878,442	2,214,676
1926–27	12-23-26	147,055	789	321,902	116,050	48°	360.5	457.0	2,440,776	2,658,170

TABLE NO. 2. COMPARISON OF GAS SENDOUTS ON PEAK DAYS AND AVERAGE WINTER DAYS

	1921	1922	1923	1924	1925	1926	1927	1927e Averag—
Average Daily January Gas Sendout, M. c. f.	41,950	51,900	55,850	65,700	72,700	71,400	85,700	
Average January Sendout Plus 20%, M. c. f.	50,340	62,280	67,020	78,840	87,240	85,680	102,840	
Peak Day Sendout, M. c. f.	52,296	70,651	100,823	99,825	105,498	90,497	147,055	
Excess of Peak over Average Plus 20%, M. c. f.	1,956	8,371	33,803	20,985	18,258	4,817	44,215	
Percentage of Peak Load Excess	3.88%	13.45%	50.41%	26.61%	20.92%	5.62%	43.00%	23.4%
M-B. t. u. Sendout per Meter on Peak Day	225.9	235.7	322.3	316.0	297.8	253.1	360.5	

make the statement that Los Angeles presents the most difficult gas supply problem of any large city. The figures in Table No. 1 show the increase of the load of the Los Angeles Gas and Electric Corporation during the past several years.

In attempting to analyze the amount of capital invested in gas properties, to meet peak loads, we must of necessity start with some arbitrary basis for determining what is meant by peak loads. Experience has shown that January is generally the month of heaviest average demands, and it therefore appears proper to use the average daily sendout for the month of January as a starting point. We may then assume that normal increases in winter demand would exceed this January average by 20 per cent. In other words, the maximum normal winter loads might amount to the average for January plus 20 per cent, and loads surpassing such a figure may then be termed abnormal or extreme peak loads. It is, then, the investment to provide for such extreme loads that we are concerned with. Table No. 2 presents figures analyzing the peak loads of Los Angeles Gas and Electric Corporation on the above basis. It is to be noted that every few years we experience a peak very greatly exceeding the average winter loads, and in order to render service it is of course necessary to meet such demands, for the consumer is most concerned in adequate service at that very time of extreme cold weather. For the past seven years, the average of peak loads on a cubic foot basis, has been 23.4

(Continued on Page 54)

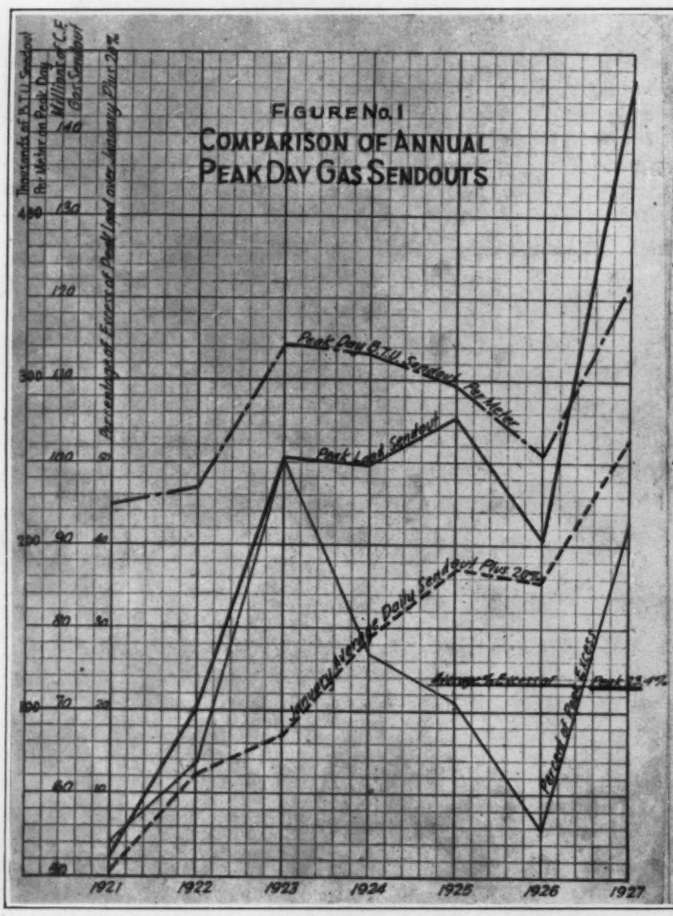


Figure 1.

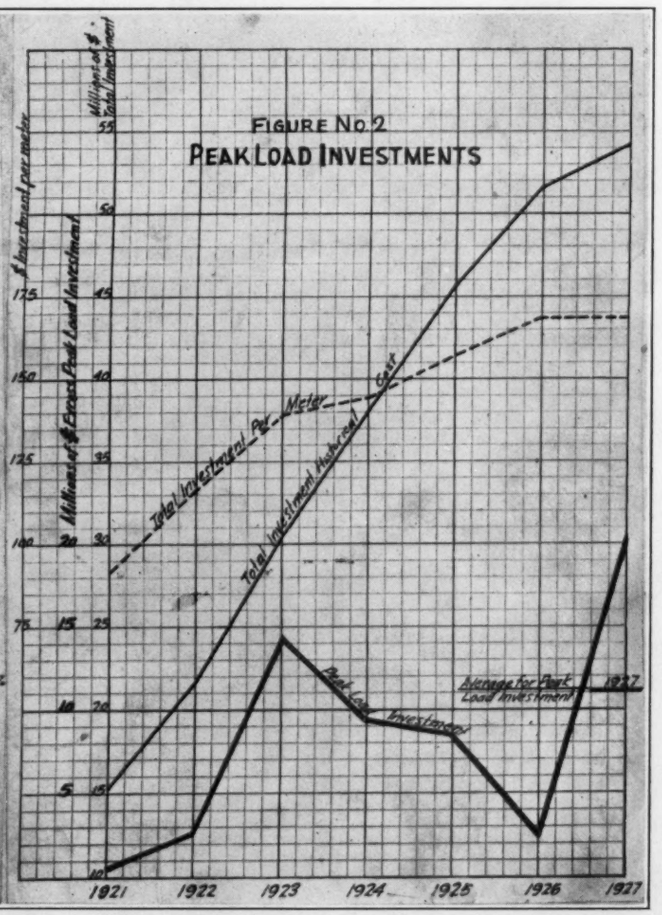


Figure 2.

Selling *to* Secure More Gas Sales Per Domestic Consumer--- *to* Build Load

By W. E. DERWENT
George D. Roper Corporation
Rockford, Illinois

Problems of protecting the residential load, and of stimulating gas sales generally, are not bounded by any one section of the country. Though Mr. Derwent's paper was intended primarily for the ears of those who attended the Mid-West Gas Association convention, its implications can with profit be taken to heart wherever gas companies operate. Convention dates for the Mid-West Gas Association, which embraces the states of Iowa, Minnesota, Nebraska, and the Dakotas, were April 20, 21 and 22, the sessions being at St. Paul, Minn.

YOUR Committee has handed me a big subject with which the entire period of time occupied by this Convention might be profitably spent, and we would still have much to discuss even then. The question of increased sales, improved sales methods, is a vital one and from my viewpoint is today the real heart of our business.

First I am going to quote some figures furnished by the Department of Commerce at Washington, D. C., concerning the volume of business done in 1925—the last year figures are available for—to give us something of a background to think about after we leave here, as these figures have a bearing on the subject assigned to me.

According to the Department of Commerce figures for 1925, the heating and cooking apparatus field, (this includes coal, gas and oil, central heating plants, warm air, hot water, steam and space heaters), produced products valued at $493,232,937, this total being made up as follows:

Cast Iron Hot Water Heating boilers	$ 36,906,786
Steel Hot Water Heating boilers	6,917,564
Cast Iron Steam Heating boilers	13,738,041
Steel Steam Heating boilers	1,091,581
Radiators	54,855,447
Warm Air Heating Furnaces totalling 505,162 units, valued at	46,823,998
Cooking Stoves and Ranges, all kinds, 3,572,487 units valued at	116,671,403
Heating Stoves and Room Heaters, 2,140,174 units, valued at	28,014,527
Water Heaters, domestic, 1,072,841 units, valued at	19,546,727
All other stoves and ranges, approximately 200,000 units, valued at	3,649,000
Parts and fittings, including steam, valued at	137,707,270

A DUBIOUS SALES RECORD

Now let us analyze these figures. There were produced 1,397,229 gas cooking stoves and ranges, and figuring our population nationally at approximately 120 millions of people, with approximately 30,000,000 homes, we sold gas ranges to about four-tenths of one per cent of the homes. Is this what it should be?

These same manufacturers sold 596,818 gas heating stoves. Again, the report of the Department shows about 400,000 oil and gasoline room heaters sold, or four-fifths as many oil and gasoline heaters as there were gas.

Now for the water heaters the records indicate a total domestic sale of 1,072,841 units, out of which the gas water heaters totalled 823,057 units, which shows a larger percentage of the total than in the previous field mentioned.

I know statistics are not so pleasing to the ear, but with these as a background I hope they will bring you a true appreciation of the magnitude of the appliance end of this business. Check these facts, if you will, and draw your own conclusions as to what the possible market we are not now reaching is.

The question of how to increase domestic gas sales is one that is of great importance, and is causing considerable concern to executives of many properties. So much importance is attached to this subject that a special committee of the American Gas Association with Geo. Whitwell as chairman is endeavoring to make a study, survey and analysis to present to the members at our coming October meeting on the question of the cooking load. This may bring enlightenment and help.

Primarily I am of the opinion from personal contact and observation that there are many companies that do not have a definite set-up or objective, and therefore, without a goal to shoot at, they drift. There are still many in our industry who think that it is not necessary to sell gas aggressively, that the public cannot get along without it, particularly for cooking; in other words, it is a domestic necessity. Men in this frame of mind in our industry are dangerous, and we have them.

I cannot help but feel, from information I have, but what there is an appreciable loss of domestic business the country over,—and I believe this is a general belief.

I believe also that the backbone of the business today is the domestic cooking load, and to substantiate this belief I call attention to a survey which was recently made at Brooklyn, New York. I am informed that upon its completion it showed very definitely that 85 per cent of the total send-out of the Brooklyn Union Gas Company was for domestic consumption. This information was conveyed to me by Mr. Wiske, Commercial Sales Manager of the Brooklyn Union Gas Company. This should awaken us to the desirability and the necessity of as energetic selling effort for gas cooking sales as for any other use.

There is a wide variance as to the extent domestic gas sales have been developed.

We have companies that have developed and use extensive advertising efforts to develop domestic cooking.

We have companies that do not sell appliances.

We have companies that maintain the sale of equipment as essential to success in obtaining domestic load.

We have companies maintaining large home service departments, a diversity of stores and auditoriums, highly trained, highly powered salesmen, cooperative plans with equipment manufacturers, rental schemes for use of domestic appliances, rates designed to develop a greater domestic use.

Then, we have companies that apparently feel the public must come and take their products away from them.

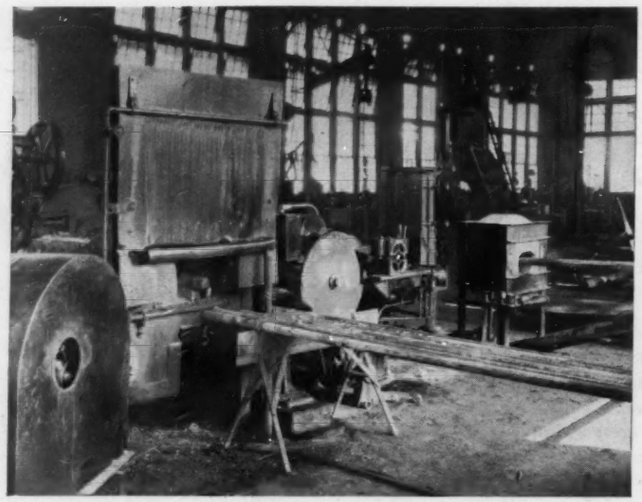
ANALYZING THE PROBLEM

Mr. Whitwell's Committee on Domestic Cooking sees a problem, and it is presented about as follows:

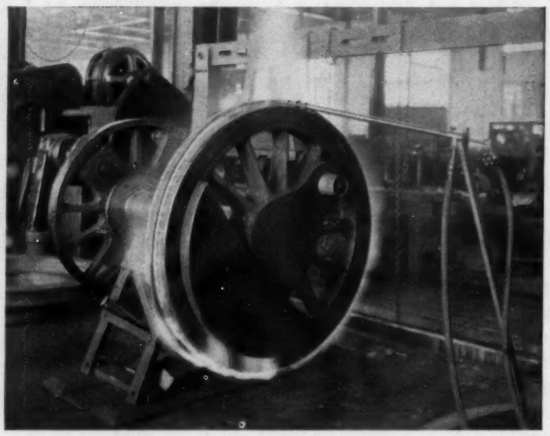
1. Is the domestic cooking load an essential part of our business?
2. If so, is it increasing, holding its own, or decreasing?
3. If it is decreasing, to what extent and why?
4. If we know the cause for decrease, is it economically possible for us to offset it?
5. What means are at hand in order to effect such offset?

As a member of Mr. Whitwell's Committee, I am presenting this Committee's problem as outlined and shall appreciate hearing from any member of this association, for it is only by combin-

(Continued on Page 51)



LEFT: *A flue-heating furnace installed in the Western Pacific Railroad shops at Sacramento, Calif., and operating on manufactured gas served by the Pacific Gas and Electric Company.* BELOW: *City gas fires the Western Pacific tire heater shown in the illustration*



The Railroad Shops *of* Sacramento Depend *on* Gas Fuel

By W. T. MAYER
Industrial Gas Engineer
Pacific Gas and Electric Co.
Sacramento, Calif.

THE Western Pacific Railroad first started to use city gas in its Sacramento shops in June, 1923. At this time only small appliances, such as soldering furnaces and hand-preheating torches, were installed. Later, city gas was used for metal cutting along with oxygen. By doing this acetylene was replaced, effecting a saving because city gas is cheaper than the former. Another advantage in using city gas is the fact that when the cutting is completed the article may be put into a lathe or shaper and machined without any danger of dulling the cutting tools. Using acetylene and oxygen, the material cut retains a semi-case-hardened surface approximately 15/1000ths of an inch in thickness which will dull the cutting tools if it is machined. A comparison of costs in using city gas and oxygen as against acetylene and oxygen follows:

	City Gas		*Acetylene*	
Test Number..	1	2	1	2
Thickness of material in inches	6"	1 1/16"	6"	1 1/16"
Pressure of Oxygen in pounds 85		40	110	40
Pressure of Gas in lbs...21		25	15	15
Cubic feet of Oxygen used 128		48	100	36
Cubic feet of Gas used.... 7.7		3.3	7.0	7.0
Cost of Oxygen $1.344		$0.504	$1.05	$0.378
Cost of Gas.... 0.006		0.003	0.193	0.193
Cost of Labor 0.15		1.15	0.15	1.15
Cost for 15 min.$1.50		$0.66	$1.39	$0.72
Lineal ins. cut..27¾		59½	19	37½
Cost 100 lin. in.$5.40		$1.10	$7.33	$1.92

(The above figures are given through the courtesy of the Victor Oxy-Acetylene Equipment Co., 842 Folsom St., San Francisco, Cal.)

From the above figures it is seen that city gas is much cheaper than acetylene. Another factor in favor of city gas is the fact that it may be piped all over the shops; it is always on hand. It is not necessary to buy steel containers, and the labor and transportation attached to handling are done away with.

About this same time, gas-fired rivet forges were installed, replacing the old coal-fired forges. These gas forges are portable and are moved to the work instead of bringing the work to the forge. The gas-fired forges have done away with smoke and eliminated the loss of rivets through overheating, as well as cutting the scale formation to a minimum.

The next installations were a spring furnace and carbonizing furnace. These furnaces are both about the same size, 56 in. by 36 in. by 16 in. At the present writing, the lining in the spring furnace has never been touched although the furnace has been in daily operation since 1923, when it was converted from oil to gas as a fuel. This is another instance why gas is the ideal fuel, because it saves wear and tear on furnace linings, thereby preventing costly shutdowns and repairs. The furnace atmosphere is controlled, resulting in the absence of scale. Other big and very important factors in favor of city gas as a fuel are those of safety and ease of control. These furnaces are safe because there is no danger of a back-fire.

The next installations were two flue-heating furnaces, which are used for heating flue-ends prior to cutting with a circular saw. City gas replaced kerosene as fuel for heating the flues. Following are data obtained from the operation of the spring furnace and the flue-heating furnace:

Spring Furnace

Average consumption per day (8 hours)	5789 cu. ft.
Cost per day at rate of 400,000 cu. ft. per month.....	$4.55
Average weight of springs put through per day.....	2012 lbs.
Cost per lb. for heating Springs	$0.0022

Note: These springs have to be put through the furnace a second time after plunging in oil, which is not taken into consideration in figuring weight of metal put through furnace.

Flue Furnace

Average consumption per day (8 hours)	4090 cu. ft.
Average cost per day, same basis as above.....	$3.23
Average number of flues (2") per day	320
Average cost per flue for heating	$0.0101

Note: These flues were heated with safe end preparatory to welding.

A gas-fired ring-burner for heating locomotive tires is used in place of one which formerly used gasoline or kerosene as fuel. The advantages of city gas in this operation are that it leaves the tires free of soot, is faster in operation and, above all, absolutely safe.

During the latter part of 1925 a big plate-annealing furnace was con-

verted from oil to city gas as fuel. This furnace is 10 ft. by 14 ft. by 3 ft. Formerly six oil-burners were used in this furnace; these were replaced by six high-pressure gas burners. Before using gas much metal was lost due to the formation of scale on the plates, as a result of the oxidizing action of the oil-air atmosphere of the furnace. Now this scale loss is reduced to a minimum, there being little, if any, formed. The plates are softer and this enables them to be worked much easier than before the change to gas. The furnace requires about one hour and fifteen minutes to reach the operating temperature. After this temperature is reached plates may be annealed at the rate of one every twelve to fifteen minutes. No difficulty is experienced in starting the cold furnace. Using city gas, it is only a matter of two or three minutes until all burners are lighted and operating perfectly.

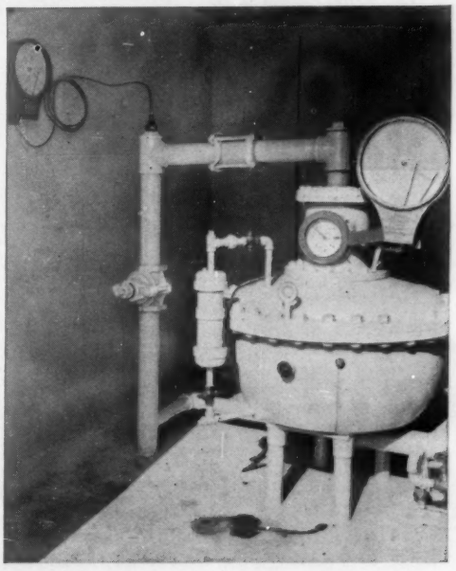
The latest installations of gas-fired equipment are two furnaces which formerly used oil as a fuel. These are a bull-dozer furnace and a rod-annealing furnace. The bull-dozer is used for heating all kinds of small forgings, while the rod-annealing furnace is used for annealing side-rods, main rods, draw bars, driving boxes, draw bar equalizers and other miscellaneous parts. These furnaces are giving very good results and are used every day.

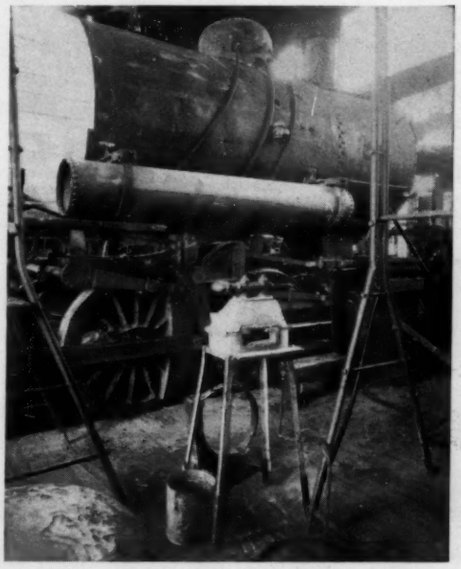
With the exception of the soldering furnaces and the tire heater all of the equipment in the Western Pacific shops is furnished with city gas at ten pounds per square inch pressure.

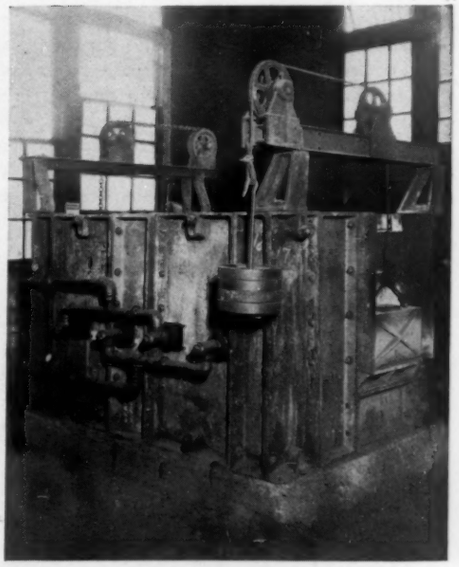
The Southern Pacific railroad shops, which are also located in Sacramento, are another of our large consumers of city gas for industrial purposes. In these shops city gas is used for brazing, in bench-furnaces, babbitt heaters, tinning and galvanizing furnaces. The new station uses gas for cooking in its restaurant, which formerly used oil. Another oil-replacement was made in their hospital.

Summing up, we can confidently say that these big industries rely on city gas as a fuel because a great deal of economy is effected over the equipment which was formerly used and fired by crude oil, from the standpoint of cleanliness, convenience, safety and saving in time of heating and ease of control. Too much can not be said of the safety of city gas as a fuel in comparison with various other fuels. Though yielding place to its younger rival, electricity, as a lighting agent, this hundred-year-old commodity is in greater demand today than ever as its value as a heating agent becomes universally recognized.

Editor's note: Mr. Mayer has confined himself to telling the interesting story of gas in the railroad shops of Sacramento. He might have gone on to tell of other sections in which gas is being found the ideal fuel for railroad shop demands. In Southern California, for instance, natural gas has entered a number of railroad plants. In the Pacific Electric Railway plant at Torrance, the complete blacksmith shop is gas-equipped, which includes forging, rod end heating, spring forging furnaces, carbonizing furnaces, annealing work and all small uses throughout the shop. Gas torches have displaced acetylene for many uses. In the new Santa Fe shop at San Bernardino four boilers are on gas fuel, and oil consumption of the furnaces is undergoing tests as a necessary preliminary step to figuring comparative costs with gas. The Southern Pacific shops in Los Angeles were sold to gas the first of 1927 and equipment is now being installed there. Gas also fires the boilers of the Redondo Junction railway plant in Los Angeles. And so the record goes. Gas is proving its worth to the railroads, and is acquiring new duties in all of the shops into which it has been introduced.







ABOVE, *top*: *A carbonizing furnace in the Western Pacific's Sacramento shops—fired with four high-pressure tunnel burners. Bottom: High-pressure meter installation at the Western Pacific shops.* LEFT: *A rivet forge in the same plant.* RIGHT: *This Western Pacific furnace is used for making locomotive springs, and operates at 1800° F. Production with this furnace doubled over that secured with oil furnace, using same crew of men.*

The Cleaning *of* Natural Gas

MR. MILAM, author of the paper printed on this page, is assistant superintendent, compressor station, the Empire Companies, with headquarters at Bartlesville, Okla. His paper, which was delivered before the 1927 Southwestern Gas Meter Short Course, outlines the course of research leading to the development of the Empire Companies' new type separator, which has proved very effective for cleaning natural gas. The development of the separator was in the hands of J. P. Fisher, chief technologist of the Empire Companies.

¶ At the bottom of the page is a group photograph of those attending the fourth annual Southwestern Gas Meter Short Course at the University of Oklahoma, Norman, Okla., April 5, 6 and 7. Three hundred men representing ten states studied the design, construction, maintenance and repair of gas measuring appliances and provers. This school is sponsored by University of Oklahoma, Corporation Commission of Oklahoma and Oklahoma Utilities Association.

By H. B. MILAM
The Empire Companies
Bartlesville, Okla.

THE cleaning of natural gas is a problem that is as old as the industry itself. There has always been more or less trouble caused by sand, water and oil from the wells, dirt and mill scale left in the lines when laying.

Various types and sizes of drips and separators have been built and installed. Almost everyone connected with the industry, from office boy to manager, has some pet idea for a drip, such as dust traps, or large tanks, cyclone separators, syphons, tee drips, and various other kinds.

A few years ago our problem was made worse due to a small amount of oxygen being in the gas coming from residue plants, usually less than one per cent. This, together with moisture, caused internal corrosion of our lines and traveled as a fine dust. About three or four years ago the trouble became worse on our system, first showing up at our compressor stations, townborder or reducing stations, and domestic lines. The various kinds of drips already installed did not prove effective.

At this time the problem was turned over to J. P. Fisher, Chief Technologist of the Empire Companies, for solution. We are indebted to Mr. Fisher for the following information on the development of the new type separator:

PRELIMINARY WORK

As a part of the general problem of dealing with dust in natural gas transportation lines, the development of a simple and effective dust separator was thought to be necessary.

A preliminary study was made of the problem in which it was submitted to several manufacturers of different types of equipment designed for this purpose.

A study was also made of the experiments carried on at the Agricultural Experiment Station at Berkeley, California. These experiments were on various types of dust separators, to be used in internal combustion tractor engines, for removing the dust from the air. These tests were quite complete and very helpful in securing a good idea of the possibilities of different types of equipment for accomplishing this purpose. The full report of these tests was issued by the University of California Press, Berkeley, California, May, 1923, Bulletin No. 362. In all, twenty-seven different separators were tested.

These separators were classed into three general types. The first type was dry separators or separators not involving the use of any liquid. Of the dry separators there were two classes, those using centrifugal force to effect the separation and those filtering the air through a fine meshed filter of cloth or like material. The filtering type would not be adaptable to use with natural gas because of the danger of clogging and impeding the flow. The centrifugal type showed very poor efficiency, the amount of dust removed varying from a little over 40 per cent to about 87 per cent. This is not considered a sufficiently good separation to be worth while.

The second type of separator used water in the separating process. Usually the air was bubbled through water to remove the dust. The efficiency of this type varied from about 89 per cent to about 97 per cent. While this efficiency is better than the dry type, it still leaves a great deal to be desired and the use of water in natural gas lines would be objectionable both because of its liability to freeze and because it would saturate the gas with water vapor, which would not be desirable.

CONTACT METHOD

The third class of dust removing equipment utilized oil in the removal of dust and might be termed the contact method, since the dust was caught and held by the oil either by bubbling the air through the oil or by passing the air through a coarse filtering material wet with oil. The efficiency of this type of separator varied from 96 per cent to 99.9 per cent, and while no type described and tested would be adaptable to the problem of separation of dust from natural gas under high pressures, the general principles which seemed to produce the efficient separation were studied, and formed a basis on which the development of our separator has worked out.

Preliminary experiments were made using air at practically atmospheric pressure and building various designs of separating equipment to go into a glass Bell jar about 4″ in diameter by approximately 28″ long. By the use of a glass Bell jar as an outer case, it was possible to observe the action of the separator,

(Continued on Page 46)

Delegates to Fourth Annual Southwestern Gas Meter Short Course. For details see information in box above.

Use *the* Industrial Data Sheet *to* Win *and* Keep *the* New Consumer

By EDGAR M. DEREMER
Southern California Gas Co.

¶ Consideration of the part played by data sheets in industrial gas selling had an important place on the P.C.G.A. Commercial Section program at the Los Angeles regional meeting, where Mr. De Remer's paper was presented. The paper offers a brief description of the method followed by the Southern California Gas Company in recording industrial data. Particularly stressed is the importance of the industrial service department, in holding industrial consummers. In the discussion following the paper it developed that industrial user's complaints have been cut more than half since the company's industrial service department began operation.

WHAT is it going to cost? This question is asked by every prospect for industrial gas and equipment. And this question must be answered.

The variety of industries that should be using industrial gas is so large as to make it impossible for any one engineer to be well versed on all types of installations. The need for accurate data relative to industrial heating installations is most imperative.

The ideal way to obtain this information would be for the gas company to actually set up the equipment and carry the process through, securing accurate data on operation, time required, resulting product and cost. This is obviously out of the question with most gas companies, except on a few standard applications.

A PLACE FOR COOPERATION

The practical way then is through wide-spread cooperation between the industrial gas engineers and the equipment companies in obtaining, recording and distributing accurate data in the form of industrial data sheets. It is frequently difficult to obtain these data as trade secrets are sometimes involved; however, if diplomacy is used and the information remains confidential to the gas companies, the data can be obtained.

The thing that is going to sell gas to the industrial world is not the low cost of gas but the total cost of the finished industrial commodity.

It is true that gas has a higher efficiency of application than any competing fuel and to use it would accomplish the conservation of natural resources. Unfortunately, however, the interests of the sharp penciled industrial manager in the conservation of natural resources influences him very little in the selection of a fuel.

Industry today is in a period of keen competition. Mass production and automatic equipment are the modern methods of reducing operating costs. By the use of automatic controls in heating operations, the resulting product is far superior and the over-all savings are often so large that the cost of fuel is made relatively unimportant. The finished product is the main thing.

Industry is changing from the old manual to the modern automatic control, as applied to heating processes. Such a change means a good sized investment by the manufacturer.

The industrial manager's decision as to the proper fuel will be based largely on the equipment available for its application. And when the fuel is selected and the investment is made in modern equipment, it will be several years before another change will be made.

EQUIPMENT DETERMINES FUEL USED

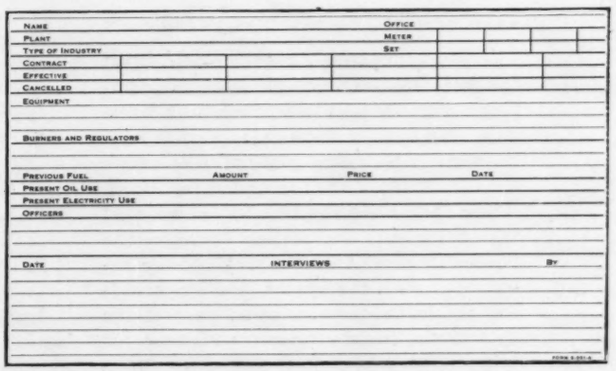
With adequate and efficient equipment available, gas as a fuel is unbeatable in the scheme of automatic control. Our competitors in the industrial heating field realize very well that the equipment determines the fuel to be used and are bending every effort in the development of equipment. Therefore, it is necessary that the men in the gas industry and the equipment companies cooperate to the fullest extent in the circulation of industrial data, if we are to realize our opportunities in the industrial field. Our job is well defined—we must sell them and keep them sold.

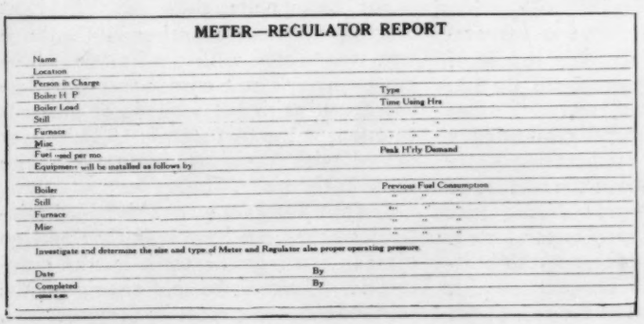
The Southern California Gas Company has a great number of industrial gas consumers on its lines, and to keep an accurate record of each plant is no mean job. We have developed several forms for recording data and are still looking for improvements. Our system for recording data on prospects and consumer is briefly as follows:

First: A brief survey of the prospect's plant is made and his equipment and require-

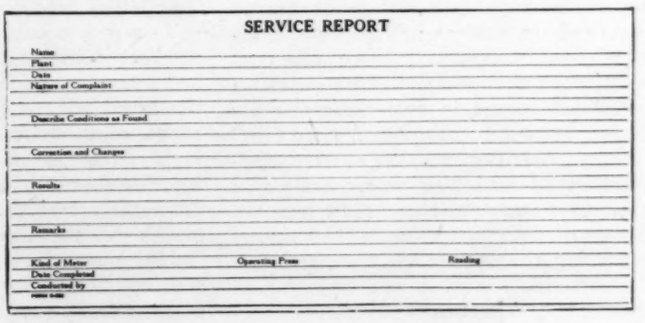
(Continued on Page 55)

Below are illustrated some of the forms used in industrial selling by the Southern California Gas Company. The preliminary data form is shown at the top, supplying information used in selling the consumer.


NAME
PLANT
TYPE OF INDUSTRY
CONTRACT
EFFECTIVE
CANCELLED
OFFICE
METER
SET
EQUIPMENT
BURNERS AND REGULATORS
PREVIOUS FUEL
AMOUNT
PRICE
DATE
PRESENT OIL USE
PRESENT ELECTRICITY USE
OFFICERS
DATE
INTERVIEWS
BY


METER—REGULATOR REPORT

Name
Location
Person in Charge
Boiler H. P.
Boiler Load
Still
Furnace
Misc
Fuel used per mo.
Equipment will be installed as follows by
Type
Time Using Hrs
Peak Hrly Demand
Previous Fuel Consumption
Boiler
Still
Furnace
Misc
Investigate and determine the size and type of Meter and Regulator also proper operating pressure.
Date
By
Completed
By


SERVICE REPORT

Name
Plant
Date
Nature of Complaint
Describe Conditions as Found
Correction and Changes
Results
Remarks
Kind of Meter
Operating Press
Reading
Date Completed
Conducted by

Loading the Company Lines with Gas Room Heaters in Tucson

By P. DRACHMAN

Sales Manager, Tucson Gas, Electric Light & Power Co.

P. Drachman

¶ COMPARATIVELY little sales effort had been put upon gas heaters in this Arizona community, until the campaign which is described in this article. Organized selling thus had the best of chances to show what results it could produce—and it produced! Mr. Drachman summarizes the methods followed in this thirty-day sales drive, for the benefit of other companies which may be planning similar efforts. The experience of the Tucson company proved that there was an unexpectedly large market, proportionate to the population, for room heaters. It simply was a matter of selling them.

SELLING approximately 200 gas room heaters in thirty days was the accomplishment of the Sales Department of the Tucson Gas, Electric Light & Power Company, a company which serves 4,000 meters and is located at Tucson, Arizona. It was such an easy campaign that the Sales Manager thought it might be of interest to the other gas companies.

A survey of the two previous year's sales showed that approximately 50 gas room heaters had been sold each winter and that no particular effort had ever been expended in this channel. An analysis of conditions disclosed the fact that there existed two points of sales resistance—first, people in general in Tucson knew nothing about gas heaters and consequently would not make any expenditures for house piping to connect up a gas heater which they were not sure would meet their heating requirements; second, gas heaters had never been sold on an installed price basis, which meant that the added expense for installation faced the buyer.

A SIMPLE SALES PLAN

The plan of the heater campaign was laid out in a very simple manner. The city was divided into territories and four outside salesmen were employed to concentrate their entire efforts on heater sales. The basis on which the heaters were sold was a time payment plan. The purchaser paid $3.00 down for the heater and $3.00 monthly with his gas bill. A flat installation charge was worked out which was included in the first price of the heater. The campaign heaters were of two sizes—a 7 and 10-element Welsbach—and sold for $21.00 and $24.00 respectively, installed in any room. The down payment, $3.00, was the salesmen's commission—no other compensation being paid for his efforts.

To tie in with the outside sales force, proper floor and window displays were arranged, as well as newspaper and direct-by-mail advertising. All ads read very much the same: "$3.00 installs a Welsbach heater in any room in your home; balance monthly with your bill."

Every morning the four outside salesmen would load four or six heaters in their cars and take them right into the homes of their prospects and by simply removing the burner on the gas range and attaching hose, it was very easy to demonstrate the heater to the satisfaction of the prospective purchaser. The sale, however, was not usually completed at this point but the heater was generally left over night in order that the housewife might familiarize herself with its qualities and also show it to her husband. A survey of the number of heaters placed on trial disclosed the fact that approximately 8 out of 10 were sold.

FREE DEMONSTRATION WAS IMPORTANT

Too much stress cannot be laid upon the free demonstration phase of this campaign, because once a heater is in a home it is very easy in most cases with a hose connection to either place it just inside the dining room or in the breakfast nook. These home demonstrations eliminated the first sales resistance because the housewife would in this way become acquainted with the heater, and by including the installation price as part of the cost of the heater the extra expense for house piping was not considered, thus eliminating the second resistance.

Tucson is a city of very few furnace-equipped homes, and the only source of heat for most residences is a fire place in the front of the house and a kitchen range, so this city naturally afforded a very fertile field for gas heaters. Cold weather first sets in about the middle of November, and so it was during that month that the campaign was conducted.

Unfortunately, however, only 80 heaters were stocked for the campaign, which meant that by the 15th of the month the supply was exhausted and an additional 50 were secured from Los Angeles. This additional 50 was in turn exhausted in less than a week's time, which naturally meant some delay and cancellation of orders due to non-delivery. This was unforseen and could have been avoided if the campaign had not progressed much faster than had been anticipated. Seventy-five additional heaters were required to complete the program.

The merchandise sales more than covered the total expense of the campaign and the gas department immediately realized a substantial increase in load. An analysis of the heating load showed each heater averaging about $5.00 per month and with a six months winter season, one heater on this basis is equivalent to either a gas range or a water heater.

This heater campaign was the first of its kind ever attempted by the Tucson Company and naturally had some rough spots that will be smoothed out in future campaigns.

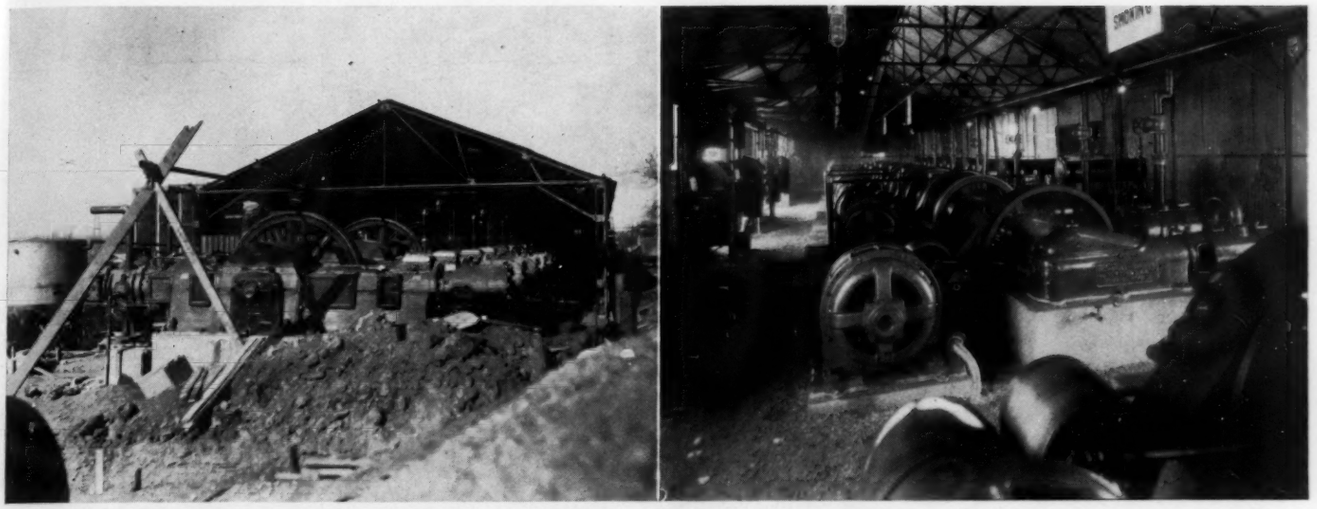
The underlying, basic principles are as follows:

1. Campaign but one or two models of a good make of heater.
2. Sell heaters at popular prices, installed. An average installation cost must be added to the sale price to cover this cost.
3. Send heaters into the homes for free demonstrations. It is here where the sales are made.
4. Sell heaters on the installment plan with a small down payment and spread the balance over a six months period; no longer, because the heater should be paid for before the heating season is over.
5. Advertise. Tell the world you have something good!

Each gas truck in Tucson carried a banner "Watch for the Welsbach salesman. He brings you warmth."

An automobile show was held at Tucson the same month and the huge tent was heated with gas heaters. The gas company's rest corner was fitted up and heated with gas, while large placards throughout the tent stated: "This show heated with Welsbach heaters. Notice them in the aisles."

If gas companies want this added winter load they can have it if they will go after it, but a gas heater is like an automobile—it cannot be sold sitting on the salesroom floor; it must be demonstrated.



LEFT: *Construction view of the Pure Oil Company's compression gasoline, gas lift plant at Seminole, showing battery of Bessemer compressors.* RIGHT: *Ingersoll-Rand compressors in another large Seminole compression plant*

Treating Recycled Gas Brings Profit *to* Plants *in* Seminole Field

By H. L. GREENE

THOUGH developed primarily as an effective agency for petroleum production, the gas lift is coming to have many important implications to the manufacturer of natural gasoline. To all intents and purposes, to the gasoline operator, the application of the gas lift means a renewed and increased gas supply, prolonged over a lengthier period than that of a field's ordinary life, and resulting too in most cases in an enriched gas. Oftentimes this combination of more gas and richer gas has meant just the essential difference between red and black on the company's books.

During the past two or three years the producer of petroleum has been investigating and perfecting methods of flowing his wells by artificial means, first going into old producing areas and injecting gas under pressure into individual wells and accomplishing the recovery of more oil at a much cheaper lifting cost. Gasoline plants located in such areas have almost invariably profited by the recycling of residue gas through these old wells. In a few isolated shallow fields, certain producing operators have found that by flooding the shallow oil sands with dry gas under comparatively low pressures, that these old sands have yielded additional oil, more cheaply, and that the circulated gas could be profitably handled through a nearby gasoline extraction plant. Having proven highly successful in its operation in old fields, and in old individual wells, the gas lift has within the last year been extensively applied to flush productive areas, with results so encouraging as to promise the extension of gas lift methods wherever practical. All of which holds much interest for the natural gasoline industry.

GENERAL OPERATION OF LIFT

The general principle of gas lift recycling methods lies in forcing the lean residue gas from gasoline plants down into the oil sand, where, under pressure, it drives up the oil and gas already there, and in turn the gas injected becomes saturated with gasoline through its contact with the crude, and comes out a wet gas to be run through the gasoline plant again. The producers as a rule take the residue gas from the plants, run it through their own compressor installations and force it into the oil wells, turning the flow from these wells into their separators where the oil is removed to their flow tanks and storage. The saturated gas separated from the oil is piped to the gasoline plants just the same as from any producing well not on the recycling system. Operation of the plants and equipment does not show much difference from the practice at any other gasoline plant.

The most striking and important example of the application of gas lift methods, accompanied by gasoline extraction of the recycled gas is found in the intensive development of the great Seminole area in Oklahoma. This field was handicapped by a low gas-oil ratio, and sufficient natural gas was not present to provide a long flowing life to the wells drilled in the area. The life of these producers as flowing wells, was limited in several instances to but a few days, while the majority of them flow naturally but two or three weeks. Such conditions were conducive to the rapid installation of gas lift systems throughout the entire producing area, and with the intense development of gas lift recycling methods came the provision of adequate equipment for the purpose of extracting gasoline from the recycled gas.

"FOREIGN" GAS TREATED

The situation in the Seminole fields may be described as unique. Because of the low natural gas production, the decision of operators to employ the gas lift has meant importing gas on a large scale from other producing fields. Gasoline plants in the Seminole field are working on gas entirely foreign to the field in which they are located. Gas produced in other fields, and there stripped of its gasoline content, is piped to Seminole, forced into the wells and recharged with gasoline from Seminole oil, then subjected to another extraction treatment, and returned to the oil sands, the process subject to repetition

(Continued on Page 41)

Cost Accounting Helps *the* Natural Gasoline Producer *to* Efficiency

As Demonstrated *in the* Experience *of the* California Gasoline Company

By J. E. HARE
General Manager
AND
N. J. ALLEN
Assistant Secretary
California Gasoline Company

ONLY within the last few years has the natural gasoline industry developed into one of the major branches of the oil business, and, little being known about the accounting necessary to reflect its operations, it was, to a great extent, made to meet the requirements as they arose.

As the industry grew and additional plants were built, the management of the California Gasoline Company found themselves without definite knowledge of the result of each plant's individual operations, with no way of determining what to investigate in order to bring about economies; therefore, a system was originated which enabled the company to close the accounts monthly, rendering complete balance sheet, profit and loss statement and average cost per gallon of gasoline manufactured. The latter two statements show the detail by plants, and have proven of great value as they have been laid before the management completed and typed on or before the twenty-fifth of the month following that in which the expenditures were made, thus enabling them to keep a close watch on the results obtained at each plant, and to investigate unusual conditions before too long a time had elapsed to make the investigation of value.

This system provides that charges or credits shall be allocated direct to the plant affected wherever possible, and when not possible that they shall be charged to "common" and prorated to all plants on the basis of the number of gallons produced by each. The classification is arranged so as to provide control accounts for the general ledger, subcontrol accounts for the subsidiary ledger and primary accounts for the detail ledger. For example, charges for productive labor at No. 2 plant would be shown in the following manner, indicating the plant affected by a suffix—"-2":

General Ledger Control Account For Operating Expenses
900

Subsidiary Ledger Sub-Control Account For Production Operating Expenses
900-A

Detail Operating Expense Ledger For Primary Accounts
904-2

It is also elastic enough to allow for additional accounts or additional plants without disturbing those already in effect.

It will be noted upon examining the accompanying exhibit of the profit and loss statement that it not only reflects the profit or loss for the current month, but also reflects the preceding month's results and the increase or decrease in each account. Also that the figures for the individual plants tie in to the "Total for All Plants" and furnish a compari-

FOR THE MONTH OF February 1927 — CALIFORNIA GASOLINE COMPANY -- PROFIT AND LOSS STATEMENT

ACCT. NO.	DESCRIPTION	TOTAL ALL PLANTS THIS MONTH	TOTAL ALL PLANTS LAST MONTH	TOTAL ALL PLANTS INCREASE OR DECREASE (IN RED)	PLANT NO. 1 THIS MONTH	PLANT NO. 1 LAST MONTH	PLANT NO. 1 INCREASE OR DECREASE (IN RED)	PLANT NO. 2 THIS MONTH	PLANT NO. 2 LAST MONTH	PLANT NO. 2 INCREASE OR DECREASE (IN RED)	ACCT NO.
	SALES										
901	GASOLINE SALES	49770.43	35622.29	14148.14				49770.43	35622.29	14148.14	901
903A	GASOLINE SALES INTER-CO.	51482.79	53463.24	1980.45*	51482.79	53463.24	1980.45*				903A
903	DRY GAS SALES	11620.65	5911.77	5708.88	8294.60	3416.13	4878.47	3326.05	2495.64	830.41	903
903B	" " " Inter Co.		5587.42	5587.42*		5587.42	5587.42*				903B
813	Gas Exchanges	1109.82	1335.33	225.51*	1109.82	1335.33	225.51*				813
	TOTAL SALES	113983.69	101920.05	12063.64	60887.21	63802.12	2914.91*	53096.48	38117.93	14978.55	
	LESS										
904	DRY GAS PURCHASES		684.47	684.47*		684.47	684.47*				904
909	DRY GAS PURCHASES INTER-CO.										909
	TOTAL PURCHASES		684.47	684.47*		684.47	684.47*				
	NET SALES	113983.69	101235.58	12748.11	60887.21	63117.65	2230.44*	53096.48	38117.93	14978.55	
	OPENING INVENTORY	4232.17	2326.14	1906.03	2602.65	1409.36	1193.29	1629.52	916.78	712.74	
	OPERATING EXPENSES										
901	SUPERINTENDENCE	226.10	190.92	35.18	115.70	110.51	5.19	112.40	80.41	31.99	901
903	PLANT OFFICE SALARIES	800.27	883.35	83.08*	402.41	511.54	109.13*	397.86	371.81	26.05	903
905	PLANT OFFICE EXPENSES	76.94	92.85	15.91*	38.69	53.52	14.83*	38.25	39.33	1.08*	905
924	PRODUCTIVE LABOR	2680.47	2087.62	592.85	1206.23	1082.19	124.04	1444.24	1005.43	438.81	924
906	WATER	229.99	142.96	87.03	70.66	55.00	15.66	159.33	87.96	71.37	906
907	LIGHT	315.78	287.80	27.98	224.62	138.24	86.38	91.16	149.56	58.40*	907
908	LUBRICATING OIL	372.90	538.91	166.01*	187.21	17.45	169.76	185.69	521.46	335.77*	908
909	ABSORPTION OIL	1415.75	807.98	607.77	645.07	709.13	64.06*	770.68	98.85	671.83	909
910	TOOLS AND MISCELLANEOUS SUPPLIES	814.58	521.55	293.03	406.06	265.40	140.66	408.52	256.15	152.37	910
912	REPAIRS AND MTCE. ABSORPTION PLANT	2160.41	1064.74	2095.67	2409.62	213.38	2196.24	750.79	851.36	100.57*	912
913	REPAIRS AND MTCE. COMPRESSOR PLANT	952.78	592.97	359.81	691.16	312.41	378.75	261.62	281.56	19.94*	913
914	REPAIRS AND MTCE. PIPE LINES AND MTRS	1859.06	710.65	1148.41	1110.42	364.46	745.96	748.64	346.19	402.45	914
918	SALVAGE	499.24	712.49	213.25*	108.79	349.83	241.04*	390.45	362.66	27.79	918
915	AUTO EXPENSE	466.10	599.68	133.58*	234.59	332.61	98.02*	231.51	267.07	35.56*	915
917	LABORATORY SALARIES	765.65	602.01	163.64	398.93	287.97	110.96	366.72	314.04	52.68	917
919	LABORATORY EXPENSE	229.48	313.55	74.07*	120.43	181.99	61.56*	119.05	131.56	12.51*	919
920	RENTAL OF EQUIPMENT										920
921	RENT	304.80	285.42	19.38	57.58	8.72	48.86	247.22	276.70	29.48*	921
922	PROPERTY TAXES	115.04	118.48	3.44*		4.50	4.50*	115.04	113.98	1.06	922
923	TELEPHONE AND TELEGRAPH	213.60	247.34	33.74*	107.45	121.58	14.13*	106.15	125.76	19.61*	923
925	LOSS AND DAMAGE	185.65		185.65	185.65		185.65				925
926	LOSS AND CAPITAL ASSETS		96.16	96.16*		55.66	55.66*		40.50	40.50*	926
911	Repre. & Mtce. Field HdQts.	207.89	323.68	116.09*	93.83	168.08	74.25*	114.06	155.60	41.54*	911
	TOTAL OPERATING EXPENSE	15872.18	11222.11	4650.07	8812.80	5344.14	3468.66	7059.38	5877.97	1181.41	
945	INSURANCE	982.86	1472.68	489.82*	572.36	1045.06	472.70*	410.50	427.62	117.12*	945
930	GASOLINE ROYALTIES	32097.92	29755.20	2342.72	12943.40	15815.47	2872.07*	19154.52	13939.73	5214.79	930
930A	GASOLINE ROYALTIES INTER-CO.	11609.59	8323.34	3286.25	10908.68	7853.59	3055.09	900.61	469.75	430.86	933
931	DRY GAS ROYALTIES	8496.80	6092.29	2403.51	7169.20	5032.10	2137.10	1327.60	1061.19	266.41	931
931A	DRY GAS ROYALTIES INTER-CO.	1611.69	2414.63	802.94*	1325.50	2244.52	919.02*	286.19	170.11	116.08	934
932	AMORTIZATION OVERRIDING ROYALTY	622.35	442.74	179.61				622.35	442.74	179.61	932
933	AMORTIZATION GAS CONTRACTS	8772.47	8225.65	546.82	4315.84		4315.84	4456.63	8225.65	3769.02*	933
941	DEPRECIATION OF PLANT & EQUIPMENT	4993.40	4212.84	780.56	2762.48	2120.20	642.28	2230.92	2092.64	138.28	941
	TOTAL	69286.78	60940.37	8346.41	39997.46	34110.94	5886.52	29289.32	26829.43	2459.89	
	TOTAL EXPENSE	85231.13	74488.62	14908.51	51412.91	40864.44	10548.47	37978.22	32624.16	4354.04	
	LESS CLOSING INVENTORY	3332.49	4232.17	899.68*	1471.60	2602.65	1131.05*	1860.89	1629.52	231.37	
	COST OF SALES	86058.64	70256.45	15802.19	49941.31	38261.79	11679.52	36117.33	30994.64	4122.67	
	GROSS PROFIT	27925.05	30979.13	3054.08*	10948.90	24855.86	13909.96*	16979.15	6123.27	10855.88	
	PLUS OTHER INCOME										
951	DISCOUNT ON PURCHASES	146.43	245.07	98.64*	73.64	141.85	68.21*	72.79	103.22	30.43*	951
952	INTEREST EARNED	49.52	69.69	20.17*	24.90	40.34	15.44*	24.62	29.35	4.73*	952
953	MISCELLANEOUS INCOME	3117.48	998.39	2119.09	3189.10	606.47	2582.63	41.62*	391.92	433.54*	953
	TOTAL	3313.43	1313.15	2000.28	3287.64	788.66	2498.98	55.79	524.49	468.70*	
		31238.48	32292.28	1053.80*	14236.54	25644.52	11440.98*	17034.94	6647.76	10387.18	
	LESS										
950	ADMINISTRATIVE EXPENSES	3192.65	4611.37	1418.72*	1621.92	2669.14	1047.22*	1570.73	1942.23	371.50*	950
955	PROVISION FOR FEDERAL INCOME TAX	3786.19	3726.92	59.27	1698.52	3101.68	1403.16*	2087.67	635.24	1452.43	955
	TOTAL	6979.84	8348.29	1369.45*	3320.44	5770.82	2450.38*	3658.40	2577.47	1080.93	
	NET PROFIT OR LOSS	24258.64	23943.99	314.65	10983.10	19873.70	8990.60*	13376.54	4070.29	9306.25	

Asterisks following figures in this profit and loss statement indicate decreases.

FOR THE MONTH OF February 1927 — CALIFORNIA GASOLINE COMPANY -- COST STATEMENT

	ACCT. NO.		TOTAL ALL PLANTS GALLONS	TOTAL ALL PLANTS AMOUNT	TOTAL ALL PLANTS UNIT	TOTAL ALL PLANTS LAST MONTH	PLANT NO. 1 GALLONS	PLANT NO. 1 AMOUNT	PLANT NO. 1 UNIT	PLANT NO. 1 LAST MONTH	PLANT NO. 2 GALLONS	PLANT NO. 2 AMOUNT	PLANT NO. 2 UNIT	PLANT NO. 2 LAST MONTH	ACCT. NO.	
803-A		SALES — INTER-CO.	381354	51482.79	.135000	.131055	381354	51482.79	.135000	.131055					803-A	803-A
801		SALES — ALL OTHERS	372573	49770.43	.133586	.120660					372573	49770.43	.133586	.120660	801	801
		Total Sales	753927	101253.22	.134301	.125990	381354	51482.79	.135000	.131055	372573	49770.43	.133586	.120660		
		OPENING INVENTORY	37299	4838.17	.129679	.095939	20884	2608.65	.124924	.095254	16415	1629.52	.099270	.092585		
		OPERATING EXPENSES														
	801	SUPERINTENDENCE		226.10	.000302	.000267		113.70	.000301	.000267		112.40	.000301	.000266	801	
	802	PLANT OFFICE SALARIES		800.27	.001067	.001233		402.41	.001068	.001234		397.86	.001067	.001232	802	
	803	PLANT OFFICE EXPENSE		76.94	.000103	.000129		38.69	.000103	.000129		38.25	.000103	.000130	803	
	805	PRODUCTIVE LABOR		2650.47	.003538	.002915		1806.23	.003601	.001551		1444.24	.003473	.002566	805	
	806	WATER		229.99	.000307	.000200		70.66	.000187	.000133		159.33	.000427	.000292	806	
	807	LIGHT		318.78	.000421	.000402		224.62	.000596	.000334		91.16	.000244	.000496	807	
	808	LUBRICATING OIL		372.90	.000497	.000752		187.21	.000497	.000042		185.69	.000498	.001728	808	
	809	ABSORPTION OIL		1415.75	.001888	.001128		645.07	.001712	.001711		770.68	.002067	.000328	809	
	810	TOOLS AND MISCELLANEOUS SUPPLIES		814.58	.001086	.000728		406.06	.001077	.000640		408.52	.001096	.000849	810	
	815	REPRS. AND MTCE. ABSORPTION PLANT		3160.41	.004215	.001487		2409.62	.006394	.000618		750.79	.002013	.002851	815	
	816	REPRS. AND MTCE. COMPRESSOR PLANT		952.78	.001271	.000829		691.16	.001834	.000754		261.62	.000702	.000933	816	
	818	REPRS. AND MTCE. PIPE LINES AND MTRS.		1859.06	.002479	.000292		1110.41	.002946	.001939		748.64	.002008	.002124	818	
	819	SALVAGE		499.84	.000666	.000398		108.79	.000289	.000944		390.45	.001047	.001202	819	
	820	AUTO EXPENSE		466.10	.000622	.000837		234.59	.000622	.000802		231.51	.000621	.000885	820	
	827	LABORATORY SALARIES		768.65	.001021	.000841		398.93	.001058	.000695		366.72	.000983	.001041	827	
	828	LABORATORY EXPENSE		239.48	.000319	.000438		120.43	.000320	.000439		119.05	.000319	.000436	828	
	830	RENTAL OF EQUIPMENT													830	
	831	RENT		304.80	.000407	.000309		57.59	.000153	.000021		247.22	.000663	.000914	831	
	832	PROPERTY TAXES		115.04	.000153	.000165				.000011		115.04	.000308	.000378	832	
	833	TELEPHONE AND TELEGRAPH		213.60	.000285	.000345		107.45	.000285	.000293		106.15	.000286	.000417	833	
925	925	LOSS AND DAMAGE		185.65	.000248			185.65	.000493						925	925
926	926	LOSS ON CAPITAL ASSETS			.000134					.000184				.000134	926	926
	911	Reprs. & Mtce. Field Hdqts.		207.59	.000277	.000452		93.53	.000248	.000406		114.06	.000306	.000816	911	
		Total Operating Expenses		15872.18	.021169	.015648		9812.90	.023384	.012893		7059.28	.018931	.019480		
945	945	INSURANCE		882.86	.001177	.002056		572.36	.001519	.002521		310.50	.000832	.001417	945	945
933	933	GASOLINE ROYALTIES		32097.92	.042809	.041544		12943.40	.034343	.038187		19154.52	.051366	.046197	933	933
	933-A	GASOLINE ROYALTIES — INTER-CO.		11809.29	.015750	.011621		10908.68	.028944	.018948		900.61	.002415	.001557	933-A	
	938	AMORTIZATION OF OVERRIDING ROYALTY		622.35	.000830	.000618						622.35	.001669	.001467	938	
	939	AMORTIZATION OF GAS CONTRACTS		8772.47	.011700	.011465		4315.84	.011451			4456.63	.011951	.027261	939	
	947	DEPRECIATION OF PLANT & EQUIPMENT		4993.40	.006660	.006982		2762.48	.007330	.005116		2230.92	.005983	.006936	947	
		Total		59178.29	.078924	.073206		31502.76	.083587	.064742		27675.53	.074216	.084635		
		Total Production Expense	749789	75050.47	.100095	.088874	376884	40318.56	.106971	.077436	372905	34734.91	.093147	.104318		
		TOTAL INV. AND PROD. EXP.	787088	79882.64	.100729	.089106	397768	42918.21	.107898	.078324	389320	36364.43	.093405	.103942		
		LESS CLOSING INVENTORY	33161	3332.49	.100496	.113466	16414	1471.60	.089655	.724624	16747	1860.89	.111118	.099870		
		Cost of Sales	753927	76550.15	.100739	.087814	381354	41446.61	.108683	.075954	372573	34503.54	.092609	.104202		
		Gross Profit		25303.07	.033741	.038168		10026.18	.026329	.055101		15266.89	.040940	.016458		
	921	DISCOUNT ON PURCHASES		146.43	.000195	.000345		73.64	.000195	.000343		72.79	.000195	.000342	921	
	922	INTEREST EARNED		49.52	.000066	.000097		24.90	.000066	.000097		24.62	.000066	.000097	922	
	923	MISCELLANEOUS INCOME		3117.48	.004156	.001284		3169.10	.008388	.001403		*41.62	*.000111	.001293	923	
		Total		3313.43	.004417	.001835		3267.64	.008649	.001903		45.79	.000149	.001736		
		ADMINISTRATIVE EXPENSES														
	901	EXECUTIVE SALARIES		433.79	.000579	.000454		218.07	.000579	.000454		215.72	.000579	.000452	901	
	902	EXECUTIVE EXPENSES		565.24	.000754			294.15	.000784	*.000001		281.09	.000784	*.000001	902	
	903	ENGINEERING SALARIES		344.31	.000459	.000544		190.04	.000504	.000544		154.27	.000414	.000544	903	
	904	ENGINEERING EXPENSE		115.81	.000154	.000172		58.22	.000154	.000172		57.59	.000154	.000172	904	
	905	SALESMEN'S SALARIES													905	
	906	LEGAL EXPENSE		385.14	.000514	.002291		193.61	.000514	.002291		191.53	.000514	.002291	906	
	908	COMMISSIONS													908	
	909	GENERAL OFFICE SALARIES		736.12	.000982	.000996		370.05	.000982	.000997		366.07	.000981	.000996	909	
	910	GENERAL OFFICE EXPENSES		11.51	.000015	.000308		5.79	.000015	.000308		5.72	.000015	.000308	910	
	911	POSTAGE		17.36	.000023	.000016		8.73	.000023	.000016		8.63	.000023	.000016	911	
	912	STATIONERY AND SUPPLIES		91.87	.000123	.000118		46.18	.000122	.000118		45.69	.000123	.000118	912	
	913	GENERAL OFFICE RENT		170.03	.000227	.000486		85.47	.000227	.000486		84.56	.000227	.000486	913	
	914	TELEPHONE AND TELEGRAPH		55.72	.000074	*.000041		28.01	.000074	*.000041		27.71	.000074	*.000041	914	
	915	INSURANCE		.31		.000018		.16	.000001	*.000018		.15		*.000018	915	
	916	GENERAL TAXES		31.86	.000043	.000007		16.02	.000043	.000007		15.84	.000043	.000007	916	
	917	AUTO EXPENSE		28.65	.000038	.000024		14.40	.000038	.000024		14.25	.000038	.000024	917	
	918	TRAVELING EXPENSES				.000033				.000033				.000033	918	
	920	PROFESSIONAL SERVICES		.26		.000080		.13		.000080		.13		.000080	920	
	970	DONATIONS													970	
	971	DUES AND SUBSCRIPTIONS		6.05	.000008	.000023		3.04	.000008	.000023		3.01	.000008	.000023	971	
	972	EMPLOYEES BENEFIT		158.80	.000212	.000289		79.83	.000212	.000289		78.97	.000212	.000289	972	
	990	MISCELLANEOUS		6.58	.000009			3.31	.000009			3.27	.000009		990	
	992	BAD DEBTS													992	
	993	DEPRECIATION FURNITURE AND FIXTURES		33.24	.000044	.000043		16.71	.000044	.000044		16.53	.000044	.000044	993	
	991	INTEREST PAID				.000640				.000640				.000640	991	
		Total Administrative Expense		3192.68	.004256	.004438		1421.92	.004208	.006440		1870.72	.004218	.004436		
	952	PROVISION FOR FEDERAL INCOME TAX		3786.19	.005050	.005218		1698.52	.004806	.007465		2087.67	.005598	.005105	952	
		Total Adm. Expense Plus Tax		6978.84	.009306	.011656		3320.44	.008809	.013905		3658.40	.009816	.009541		
		TOTAL COST		78715.88	.104984	.099697		40378.36	.107137	.089658		36337.82	.102908	.111116		

Asterisks in front of figures in the above cost statement indicate credits.

son of each plant with the others at a glance. The total agrees with the profit for the month as reflected by the balance sheet.

The exhibit of the average cost statement shows that with the exception of dry gas revenues and royalties, which have not been considered as elements of cost of producing gasoline, the primary accounts and amounts are the same as shown on the profit and loss statement with the additional detail of the primary accounts embodied in Administrative Expenses. In this statement the number of gallons produced, sold and on hand are shown, together with a unit cost per gallon based on the number of gallons produced and, for comparison, the unit cost for the preceding month. This has proven invaluable to the management in enabling them to determine the plants that are operating efficiently and permits experiments being conducted in a particular plant with the knowledge that the results will be truly reflected and that a fair comparison can be made with other plants operating under established practices.

It has also proven of great value through the effect it has on those charged with the responsibility of production at each plant, when they compare their costs with those of other plants and find some one else is operating more economically.

The records back of these statements are so kept that statements can be rendered for the year to date at any time.

Accompanying these statements each months are various schedules analysing capital expenditures, depreciation reserve, condensed profit and loss with year to date also shown, cash, gasoline storage by plants with unit cost of production and value, miscellaneous inventories, deferred charges, accrued wages, miscellaneous income, accounts payable and accounts receivable so that when placed before the management by the twenty-fifth of the month, a complete history of the preceding month's business is at hand. Incidentally, the company's books are closed, trial balance

(Continued on Page 57)

PACIFIC COAST GAS ASSOCIATION

A Department Conducted by Clifford Johnstone, Executive Secretary

Curtain Rises on Northwest Regional Sessions

THE stage is set for the Northwest Regional Conference, and delegates have by this date all boarded trains, taken ship,, or broken out the private gas buggy, en route to Spokane, Wash., where they will convene on May 6 for a two-day session.

J. L. Stone

J. L. Stone, vice-president and general manager of the Spokane Gas and Fuel Company, has served as chairman of the arrangements committee, which assures P. C. G. A. men that appointments and entertainment will leave nothing wanting to repay them for the trip.

A high character of program will greet those who meet in Spokane, and will contribute to winding up committee work in preparation for the annual summer convention. Following are the program features:

FRIDAY, MAY 6

2:30 p. m.—Hotel Davenport.

Paper—"Public Relations in a Small Company," James F. Pollard, vice-president and general manager of the Coast Valleys Gas and Electric Company.

Symposium—"Electric Competition." A general discussion of its extent, seriousness, and methods of meeting it. Among those who will take part in this discussion are:

C. E. Lasher, Puget Sound Gas Company.
H. E. Seagraves, Tacoma Gas and Fuel Company.
H. M. Crawford, Pacific Gas and Electric Company.
L. H. Stratford, Pocatello Gas and Power Company.
George Smith, Southern Counties Gas Company.
A. A. Salmon, Spokane Gas and Fuel Company.
A. H. Sikes, Great Falls Gas Company.

Paper—"Competitive Fuels Other Than Electric Current," S. R. Dows, sales engineer, Pacific Gas and Electric Company.

6:30 p. m.—Dinner Dance, Hotel Davenport; $2 per plate, to be paid at dining room door. Inspiration, entertainment, dancing. Men are requested to wear business suits.

SATURDAY, MAY 7

9:30 a. m.—Hotel Davenport.

Paper—"Utilization of Gas," James J. Ferrari, Puget Sound Power and Light Company.

Symposium—"Recent Legislation Affecting Public Utilities," under auspices of legislative committee, public relations section.

"The Year's Work"—Being an open discussion of the problems now confronting association committees, led by E. N. Simmons, Los Angeles, chairman accounting section; R. M. McCalley, Portland, chairman technical section.

Saturday afternoon will be free for sightseeing, committee meetings, or inspection of the properties of the Spokane Gas and Fuel Company.

P. C. G. A. Gold Medal Is Object of Committee Strife

THE Pacific Coast Gas Association Gold Medal can be rated as an ancient institution as things go now-a-days, and the names of its recipients since the first medal was awarded in 1905 form a list of men well known and highly respected in the gas fraternity.

The idea was first suggested by W. A. Aldrich, president of the association, in 1904. Mr. Aldrich was not present at the 1905 convention, but he wrote a letter advocating that some recognition be given to papers of value. The letter is gone, destroyed in the San Francisco fire, but the words of John A. Britton in regard to it still live. In recommending the thought to the association, he said:

"The unanimous opinion of the Committee is that the Gas Association of the Pacific Coast should award such a medal . . . to be given to such a person as would present a paper of originality in its matter applicable particularly to the Pacific Coast and to this Association . . . It is thought that it would promote a greater interest in the Association's affairs, and greater interest particularly to our own affairs on the Pacific Coast, and be an incentive to the members who have not yet awakened to the fact that they may become famous by contributing to the list of papers. Therefore, your Committee recommends that a Pacific Coast Gas Association Medal be instituted and awarded by the Committee named in any one year when a paper of original merit in their judgment has been presented."

FIRST MEDAL TO E. C. JONES

Being so ably seconded, Mr. Aldrich's idea was adopted and the first medal was appropriately awarded to E. C. Jones, the father of the association. The award was made in the 14th meeting, in 1906, a time when the horror of the San Francisco catastrophe was still very present in the minds of all Californians. The graphic manner in which Mr. Jones described the heroic measures adopted by the San Francisco Gas and Electric Company to restore the gas supply won him the medal.

The second medal was won in 1907 by E. A. Rix, then, as now, president of the Rix Compressed Air and Drill Company. Mr. Rix qualified on two papers: one, "The Compression and Transmission of Illuminating Gas," read in 1905, and the other, entitled "Some Economics in High Pressure Gas Transmission," read in 1906.

John Martin won the third medal in 1909 for a paper on "The Public Benefits Derived From Water Power Developments in California," and E. L. Hall received the award in 1910 for a study entitled, "Chemical Control of Oil Gas Manufacture."

In 1912 a medal was awarded to C. L. Cory for a very excellent paper on gas rates and their determination, and in 1913 to L. B. Jones for a paper on "Oil Gas." At the 22nd meeting, in 1914, a series of five very excellent papers was read on the uses of gas, and it was decided that, as these together made an extremely valuable contribution to the literature of gas utilization, the value of the regular medal should be divided into five parts and the author of each paper should receive a smaller medal in recognition of his work. These men were C. B. Babcock, who wrote on "Gas Street Lighting"; R. J. Thompson, "Gas Lighting in the Home"; B. S. Pederson, "The Domestic Use of Gas"; H. P. Pitts, "The Industrial Use of Gas," and H. R. Basford, "Water Heating by Gas."

Samuel C. Bratton of Portland was awarded a medal in 1916 for his "Up-to-the-Minute Selling Methods," and W. M. Henderson, in 1920, for a paper describing "The Use of Governors and Regulators in Gas Distribution."

No medals were awarded from 1920 to 1924, and Mr. Henderson was the last to receive a medal under the origi-

nal rules. In 1924, the association decided to put the Gold Medal award on a definite basis of solid merit so that no paper or committee report could in future be overlooked. This new policy met with immediate response, and in 1924 four medals were fairly won. N. B. Drury's committee qualified for its report on advertising, as did K. C. Tomlinson's committee on "Naphthalene Removal," and R. M. Conner's committee which drafted the Appliance Testing Code. R. S. Fuller was the fourth recipient, the award being on his paper on "Comparative Cost of High and Low Pressure Distribution."

In 1925 three medals were awarded: one to J. E. Spelce's committee on "Naphthalene Removal," one to the Home Service Bureau, C. R. Miller, chairman, for the report which has since become the "Gas Appliance Installation and Service Manual," and the third to the committee on Employees' Relations With the Public, W. H. Barton, chairman.

In 1926 E. L. Hall was the recipient of a Gold Medal for his splendid paper, entitled "Gas Manufacture for Peak Load Conditions," and a second medal was awarded to K. N. Cundall's committee for its report entitled "The Sulphur Recovery Process of Liquid Purification."

Work which is being done now will determine the honor men at the Santa Cruz convention.

Second Printing of P. C. G. A. Appliance Manual

The second printing of the Pacific Coast Gas Association's Gas Appliance Installation and Service Manual has come off the press, and may be had for $1.50 a copy from Association headquarters at 447 Sutter St., San Francisco. Wide demand for the manual has necessitated this second printing, and the opportunity has been taken to add to its contents, making it of even greater value than before. It is made up in pocket size, has a heavy paper cover, and is illustrated. Its contents include chapters on definitions, maintenance of gas supply, house piping, vents and flues, selection of appliances, installation and use of appliances, ranges and cooking devices, water heaters, house heating appliances, and gas lighting equipment.

H. J. Smith, construction engineer of the Pacific Gas and Electric Company, has been added to the membership of the Compressor Plant Committee under the chairmanship of A. B. Newby. Mr. Smith will contribute to the committee the results of some work he has done on automatic loading and unloading of compressors.

P. G. AND E. ACQUIRES THREE BYLLEESBY PROPERTIES

LATE in April there was completed one of the most important utility mergers to be effected on the Pacific Coast, when the Pacific Gas and Electric Company acquired a number of northern California properties formerly owned by H. M. Byllesby & Co.

The properties involved are the Western States Gas and Electric Company, Coast Valleys Gas and Electric Company, and the Sierra and San Francisco Power Company, said to aggregate some $60,000,000 in combined value, bringing the P. G. and E. system to a total value of $400,000,000 in approximate figures.

Wiggington E. Creed, president of the Pacific Gas and Electric Company, in announcing action of the company's directors in ratifying the merger, stated that J. J. O'Brien, president of H. M. Byllesby & Co., had been added to the P. G. & E. directorate.

H. M. Byllesby & Co. operates 27 utility properties, in the gas, power and transportation field, throughout the United States. The San Diego Consolidated Gas and Electric Company, Tacoma Gas and Fuel Company, Tacoma, Wash., and the Market Street Railway Company of San Francisco, are among them.

The gross operating income of the three companies acquired by the P. G. & E. last year was approximately $7,500,000, and that of the Pacific Gas and Electric Company was approximately $51,000,000. This important merger undoubtedly places the P. G. and E. in the first rank of important American utility systems.

CITIES IN UTAH MAY GET GAS THROUGH LARGE LINE PLANNED

According to R. S. Lord, president of the Hope Engineering Company of Mt. Vernon, Ohio, a plan is now being formulated to bring natural gas from fields of northwestern Colorado and southern Wyoming to Salt Lake City, Utah, as well as to other Utah cities. Companies interested in the project are the Midwest Refining Company, Standard Oil Company of Ohio, Salt Creek Producers and the Prairie Oil and Gas Company, all holding large gas acreages in the territory involved.

The gas line contemplated would be 300 miles in length, of capacity to deliver 80,000,000 cubic feet of gas daily, and the project to involve a cost of $15,000,000.

Gas supplies of 200,000,000 cubic feet daily are already available in the combined output of the Baxter Basin field, south of Rock Springs; the Clay basin, in Daggett County, northwestern Utah; and in the Hiawatha structure of northwestern Wyoming.

CITIES SERVICE AND DOHERTY ACTIVITIES ARE ADVERTISED

The Cities Service organization introduced a campaign of advertising in weekly magazines of national circulation, beginning the first week in April. Full page copy is used in the magazines and at the same time a series of smaller advertisements are appearing in newspapers of the country. The campaign is designed to acquaint the public with outstanding activities of the Cities Service Company and Henry L. Doherty & Company.

NEW OFFICE STRUCTURES AT SANTA BARBARA AND VENTURA

Two new district gas offices will be constructed by the Southern Counties Gas Company, in Santa Barbara and Ventura. Work has begun and the buildings are to be completed early in the summer.

Natural Gas Men Meet *in* Cincinnati Convention

NATURAL gas men from all over America will meet in the annual sessions of the Natural Gas Association at Cincinnati, May 9 to 12, inclusive. Following are some of the convention high lights:

The Natural Gas Supply Men, Inc., will open their annual exhibition at 9:30, Monday, May 9, in both wings of the Music Hall Building.

Directors of the Natural Gas Association will hold a session on Monday afternoon, adjourning to the annual directors' dinner.

A Vaudeville and Smoker will be held at the Hotel Gibson Roof Garden for all Association members, compliments of the Natural Gas Supply Men, Inc., on Monday night.

Association sessions will open in the Music Hall Auditorium at 9:30 a. m. Tuesday, with R. W. Gallegher, president, presiding. Hon. Murray Seasongood, mayor of Cincinnati, will give the address of welcome.

Among the papers which will feature the meetings are the following:

"Education of Employees," P. G. Vondersmith, Union Gas & Electric Company, Cincinnati, Ohio.

"Laboratory Developments of Interest to the Natural Gas Industry," R. M. Conner, Director, Testing Laboratory of American Gas Association, Cleveland, Ohio.

"Selling Gas and Gas Appliances for Domestic Purposes," Geo. E. Whitwell, Equitable Gas Company, Pittsburgh, Pa.

"Some Aspects of Natural Gas Rates," Jno. E. Mullin, Esq., Kane, Pennsylvania.

"Selling Gas for Commercial and Small Industrial Uses," Henry O. Loebell, Surface Combustion Company, New York City.

"Meeting the Natural Gas Problems of the Southwest," N. C. McGowen, Louisiana Gas Company, Shreveport, Louisiana.

"The Use of Gas and Air in Oil Recovery," Frank M. Brewster, Petroleum Reclamation Company, Bradford, Pa.

During the morning and afternoon sessions of May 11 there will be an open discussion of the following questions, with J. D. Creveling of Henry L. Doherty & Company, New York, acting as chairman:

1—What effective methods do you recommend for reducing distribution system leakage?

2—What practical methods would you use for determining transmission system leakage?

3—What is the practical range for intermediate and low pressure regulators?

4—What practical methods are being used for controlling deliveries from high pressure wells?

5—What method do you regard as most effective in gaining the good will of the consumer?

6—What new methods have been developed for removing fluids from gas pipe lines?

7—What is the value to gas companies of Home Service Departments?

8—How should gas companies promote safety among their employes?

9—What are the new developments in gas meters?

10—What are the practical applications on welding of natural gas lines—field, transmission and distribution?

The twenty-second annual banquet of the N. G. A. will take place at 6:30 p. m., Wednesday, May 11, at the Hotel Gibson. W. W. Freeman, vice-president of the Columbia Gas & Electric Corp. of New York, will preside as toastmaster.

A. G. SMITH NOW WITH PORTLAND GAS & COKE COMPANY

A. G. Smith, formerly a partner in the Hess Furnace Company of Portland, has severed his connection with that firm and has been connected with the house heating division of the Portland Gas & Coke Company since March 1.

UNION TO DRILL GAS TESTS FOR CANADIAN UTILITIES

A contract has been closed with the Union Oil Co. of California for the drilling of a deep test oil well in the 17,000 acre Viking tract, which supplies Edmonton with natural gas. Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary has also recently entered into an agreement with the Union Oil Co. of California for the exploration of structures discovered by geologists of the gas company in southern Alberta.

EDITORIAL

Learning from Industry

THERE are lessons in business and industrial organization which the gas industry can profitably appropriate to its own uses. Perhaps the most obvious of these is the possibility which lies in group action of one kind or another. In all but a few of our major industries there are certain large problems which savor more of competition against an opposing industry than they do of competition among members of the industry itself. Thus the street railway feels the brunt of automobile competition; the phonograph staggers under the force of radio sales; the lumber interests awake to find a host of lumber substitutes bidding for a hitherto exclusive trade. Everywhere the New attempts to crowd out the Old—which has two implications. The New looks about for the best agencies to use in wearing down the traditional buying habits of its market; and the Old just as diligently seeks the best means of defending its hard won place in the sun.

In both cases, the lesson from industry is that combined action is better than unorganized and spasmodic single-handed efforts.

Today the gas industry, as never before, finds itself hedged about by problems which demand concerted action. We have the New to introduce, and we have the Old to defend. Refrigeration, incineration, house heating, industrial utilization—and the list could go on at length—demand concerted pioneering. And the gas tradition of domestic use needs bolstering up, in a way that no single gas utility can bolster it.

We are organized, through our splendidly-manned gas associations, to meet our competition as an Industry. Nothing should be said to minimize the value of the able committee effort and association research work that are being put on the competing fuel and diminishing cooking load problems. Beginnings have also been made in advertising gas for industry, on a scale which is wider than local. But these are beginnings only.

The gas industry must get out of traditional habits of thought; it will pay us to center our attention upon some few of our common problems which involve pioneering new uses, or defending old fields, and to develop ways and means for meeting them as an Industry.

Testimony from the Investment Field

IN the "Coast Investor & Industrial Review" for the month of April we find a comment which will strike a responsive cord in the mind of every gas man. Says this magazine, "'Gas' in the name of a utility is not a negligible factor from the standpoint of the investor." Which is to say that investors regard the position of the combination utility as more firm by reason of the fact that its gas branch is on a sound operating basis and has an extremely optimistic future.

The remark quoted above was immediately occasioned by the statement of a prominent gas official that a potential heating load of fifty billion cubic feet annually can be developed for seventy-six manufactured gas companies included in a recent national survey. These seventy-six companies were widely scattered, and represent a cross-section of the industry. Also, the rough estimate of potential heating load did not include the fields of house heating, incineration, and refrigeration.

Management Week

TYPICAL of the healthful influence exerted by many Department of Commerce activities upon the field of business is the annual Management Week announced by the Department for October 24 to 29 of this year. A number of important national industrial associations are behind this effort, including the American Society of Mechanical Engineers, the Society of Industrial Engineers, the American Management Association, the Taylor Society, the American Institute of Accountants, the National Association of Purchasing Agents, the National Foremen's Association, and others.

The Week is a particular interest of the Division of Simplified Practice, and last year was observed in 116 cities of the United States, the theme being "Progress in Waste Elimination." "Management's Part in Maintaining Prosperity" will be the motif this year, and executives in every field are urged to lend their support to the project. Scientific management principles are receiving recognition in the gas utility business as well as elsewhere.

JOHN A. BRITTON MEDAL WILL BE P. G. AND E. AWARD

Frank A. Leach, Jr., vice-president and general manager of Pacific Gas and Electric Co., has announced the adoption of an emblamatical award to be known as the "John A. Britton Medal for Distinguished Service," —serving as a memorial to John A. Britton, who for many years was manager of the P. G. and E. Two medals are provided for, one of gold, the other of silver. The gold medal may be won by efforts to save life or avert damage to company property at the risk of personal safety, or by some highly valuable contribution to the development of the company's business. The silver medal may be awarded to employees whose efforts to save life or prevent damage to property where not attended by personal risk. It may also be given to those aiding in an act or service for which a gold medal has been awarded.

BAKER CITY, ORE., GAS COMPANY ADDS TO PLANT AND MAINS

Eastern Oregon Light and Power Co. is planning to spend $20,000 on its gas system in Baker City, Oregon, $8,000 being for a new gas bench, and $12,000 for new mains and miscellaneous improvements. J. P. Lottridge, vice-president and general manager of the company, reports a 20 per cent increase in business for last year.

CHANGE OVER FUEL USERS TO "NATURAL" IN BATON ROUGE

Natural gas will soon be in Baton Rouge, La., and W. G. Gay, industrial gas engineer of the Baton Rouge Electric Co., and his assistant, O. W. Adams, are busy converting large fuel users of Baton Rouge to the use of natural gas. A number of coal installations have already been changed over.

F. M. BANKS ASS'T MGR. OF SAN JOAQUIN COMPANIES

F. M. Banks, who was formerly sales supervisor for the Southern California Gas Company, is now asistant general manager of the Central Counties Gas Company, Hanford Gas and Power Company, and the River Bend Gas and Water Company, acting under F. J. Schafer, general manager of the Southern California Gas Company. The three utilities with which Mr. Banks' new work is concerned are all in the San Joaquin Valley.

NEW O. G. & E. COMPANY HOME IS STARTED AT OKLAHOMA CITY

Work has begun on the new six-story office building of the Oklahoma Gas & Electric company at Third and Harvey, Oklahoma City. The building will cost approximately $600,000. It's first story will be faced with granite and the remaining five stories with Bedford stone. Three high-speed elevators will be installed and also a pneumatic tube system for inter-office communication. The building is expected to be ready for occupancy by January, 1928.

SANTA MARIA GAS CO. WANTS TO SERVE INDUSTRIAL USER

The Santa Maria Gas Company, Santa Maria, Calif., has applied to the California Railroad Commission for permission to contract with the Celite Company, located near the city of Lompoc, to furnish industrial fuel. This contract would allow the company to provide Lompoc with gas service. Permission to issue $200,000 in bonds to finance the extension was asked. Natural gas from the Santa Maria fields would be the fuel used for the Celite Company and also for the town of Lompoc.

Status *of* Denver Natural Gas Situation

DURING the past few months there has been rumor upon rumor circulated regarding a gas line project to bring natural gas from the Panhandle fields of Texas to the city of Denver, Colo. Tentative contracts for such a line have been signed, actual construction to be dependent upon the decision of Denver voters when new rate schedules making possible the project are submitted to them.

Western Gas is glad to print below a definite statement covering the natural gas line situation from the Public Service Company of Colorado. This first official statement was released to Denver papers of April 17 and was sent us by Clare N. Stannard, vice-president and general manager of the utility. The statement follows:

"THE NATURAL GAS SITUATION

"To our Denver customers:

"The proposal to bring natural gas into Denver has been discussed freely in the local press, and also has been made a general topic of conversation throughout the city during the last two weeks. It therefore seems pertinent that the Public Service Company of Colorado should issue at this time a formal statement setting forth the various phases of the natural gas situation.

"When our application for a franchise was before the voters of Denver, last January, we promised the city administration, the various civic bodies interested and the public in general that if our franchise was granted we would make an earnest effort to bring natural gas into this city.

"After two months of negotiation we have signed a tentative contract with the Standard Oil Company of New Jersey and the Prairie Oil and Gas Company providing for the holding of a reserve acreage in the Amarillo field larger than that available to any other city in the world using natural gas, the laying of a 400-mile pipeline from Amarillo to Denver and the bringing of natural gas to this city for distribution to our present and future customers.

"We refer to this agreement as a 'tentative contract' for the reason that it is absolutely dependent on the adoption of a rate ordinance by the city and county of Denver which will make the building of this pipeline economically feasible. The project calls for an expenditure of $22,000,000 on the pipeline and reserve acreage, in addition to which it will be necessary to spend $2,000,000 on the local distribution system in preparation for the change from manufactured gas to natural gas.

"The tentative contract being signed, our engineers are now making an exhaustive survey of the local field to ascertain just what effect the introduction of natural gas will have on the gas division of our business. When this survey is completed we will be able to draft a rate schedule which will show the people of Denver just exactly what charges will be necessary to make the natural gas project feasible.

"When the new rate schedule has been prepared we will submit it to the city administration, and we will also invite the Denver Chamber of Commerce and all other interested civic bodies to appoint committees to review the engineering data and investigate the project thoroughly.

"If, after such investigation, the city of Denver provides a rate schedule for natural gas which will make the Amarillo pipeline project economically sound, the pipeline will be built at once and natural gas will be supplied to this city. On the other hand, if Denver decides that this pipeline is too costly and that it is not willing to pay the rates necessary to finance the project, we will abandon the proposal and will continue to supply manufactured gas to our customers under our present franchise until such a time as a nearer and less costly supply of natural gas is developed Under this latter decision we would at once spend approximately $1,000,000 in rebuilding our present gas plant in order that we might more adequately supply our manufactured gas customers.

"In developing this natural gas project we feel that we are merely keeping faith with the citizens who voted us a franchise last February. We will be glad to abide by whatever decision the people of Denver may make.

"Respectfully submitted.

"PUBLIC SERVICE COMPANY OF COLORADO.

"By Clare N. Stannard, Vice-President and General Manager."

PANHANDLE GAS MAY SUPPLY KANSAS CITY INDUSTRY

According to news reports released late in April, construction work has already been started by the Cities Service Company interests upon their projected gas line which is to bring gas from the Panhandle fields of Texas to tie into the system of the Empire Gas and Fuel and other Cities Service subsidiaries, making gas available for industries in Kansas City and way points along the line. The project is understood to involve some $15,000,000 in cost.

Midland Plains Company, representing the Texas Corporation and Columbian Carbon Company interests, which some time ago announced that it was considering a plan for piping Panhandle gas over a 450-mile route to serve Kansas City and other points with industrial fuel, is understood still to be interested in the project. This leaves the possibility that two mammoth gas lines may build from the Panhandle, if sufficient contracted-for gas demand can be developed.

CALIFORNIA GAS UTILITIES REPORT 1926 REVENUES

California public utilities supplying artificial and natural gas during 1926 report operating revenues of $53,960,510.72 as compared with $53,475,309.38 for 1925, according to the state railroad commission. The increase in operating revenues of this class of utility is reported at $485,201.34.

The operating expenses of gas utilities doing approximately 99 percent of the gas business in the state for 1926 were $35,414,420.50 and for 1925 $35,470,115.35. Deducting the operating expenses from the operating revenues results in a net operating revenue for 1926 of $18,546,090.22; and $18,005,194.03 for 1925. The net operating revenue of gas utilities increased $540,896.19.

During 1926 the utilities reported 152,146,525 M. cu. ft. of gas sold, as compared with 152,534,723 M. cu ft. for 1925. While the volume of gas sold decreased, the number of gas consumers increased by 7,070; consumers for 1926 being reported at 1,086,601 and for 1925 at 1,079,531.

LIFE INSURANCE COMPANIES BIG SECURITIES MARKET

Life insurance companies now rank second only to savings banks as a market for public utility securities. Life insurance companies' investment in the securities of public utilities was more than 200 million dollars on January 1, 1927, an increase of 83 per cent since 1924, a recent analysis disclosed. Investment figures of 52 life insurance companies, holding more than 90 per cent of the assets of all such companies in the United States, were examined.

Mid-West Gas Assn. Holds April Convention

MR. C. A. NASH of Davenport, Iowa, was elected president of the Mid-West Gas Association at its opening session of April 20, at St. Paul, Minn. The association held a three-day convention at which was presented a diversified program on many phases of gas utility operation. Other officers elected were: First vice-president, H. R. Sterrett; second vice-president, Louis Stein; secretary-treasurer, A. W. Schmitt. Members of council, C. H. Myers, E. H. Vieregg, J. F. McGuire, H. R. Stephenson, F. C. Hoffman, and H. J. Butler. Affiliation representatives: Technical section,E. L. Fisher; Manufacturers' section, R. J. Canniff; Commercial section, Stanley Tabor; Accounting section, R. B. Searing; Industrial section, C. F. Schuldt.

Mr. Nash, who succeeded Frank S. Edge of Grinnell, Iowa, as president, is general sales manager for the United Light and Power Company, which serves over 400 towns and cities located in 12 states, with gas, electric, street railway and interurban railway service.

Among the papers delivered at the annual convention were: "The Water Heating Load—Its Values and Possibilities—How to Secure It," by F. A. Lemke, Kalamazoo, Mich.; "Modernizing the Home Economics Equipment in the Schools and Colleges," by Sam G. Pugsley, Chicago, Ill.; "Applying Reason to Public Utility Problems," by Frank Milhollan of Bismarck, N. D., president of the board of railway commissioners of his state; and "Selling—to Secure More Gas Sales per Domestic Consumer—to Build Load," by W. E. Derwent, Rockford, Ill. The last named appears in this issue of *Western Gas*.

Others on the speaking program were D. J. Young, Tacoma, Wash.; Geo. E. Whitwell, Pittsburgh, Pa.; and Alexander Forward, New York, managing director of the American Gas Association, who spoke at the annual banquet Thursday evening, April 21.

In the scope of the Mid-West Gas Association are included the states of Minnesota, North Dakota, South Dakota, Nebraska and Iowa. This association was formerly the Iowa District Gas Association.

LONG BEACH AWARDS HOLDER CONTRACT TO STACEY BROS.

Stacy Brothers Gas Construction Company of Cincinnati, Ohio, has been awarded the contract for construction of the Long Beach, Calif., municipal gas department's new 10,000,000 cu. ft. gas holder, according to W. A. White, chief engineer and superintendent of the city gas department. The holder is due to be complete by December 15, and construction will begin immediately. A 1,000,000 cu. ft. per hour compressor station is to be constructed in connection with the holder.

The recent bond issue passed by Long Beach voters provided $1,500,000 for the gas department's expansion plans, $750,000 to go to the holder and compressor, $200,000 to the piping of gas to the harbor district for industrial purposes, and the balance of the bond issue, $300,000, to extending gas facilities to North Long Beach. The first industrial installation in the harbor district will be to the Ford plant, which is expected to require 5,000,000 cu. ft. a day.

PUPILS LEARN TO READ METERS

Under the auspices of the Southwestern Light & Power Co. short courses of instruction in meter reading have been given in four public schools of Lawton, Okla.

STERRETT NOW ACTIVE HEAD OF DES MOINES GAS COMPANY

H. R. Sterrett, manager of the Des Moines Gas Company, Des Moines, Iowa, has been elected vice-president and manager of that utility, and has assumed full charge of the company's operations. C. M. Benedict, the company's president, was granted an extended leave of absence upon his application to the stockholders at the annual meeting, held April 5, and is to become assistant to P. H. Gadsen, vice-president of the United Gas Improvement Company of Philadelphia. The Des Moines Gas Company is a subsidiary of the U. G. I. Mr. Benedict will be engaged in public relations work throughout the extensive system of utilities owned by the United Gas Improvement Company.

H. R. Sterrett

Mr. Sterrett, now active head of the Des Moines Gas Company, came with that utility ten years ago as engineer, becoming manager in 1924.

J. G. Gamble, of Sargent, Gamble and Read, legal counsel for the company, was elected to the directorate to succeed Mr. Benedict.

TWO EXTENSIVE PIPE LINES TO BUILD IN ARKANSAS

Permits for two natural gas pipe lines were granted by the Arkansas railroad commission at a recent hearing in Little Rock, one to the Public Utilities Corporation of Arkansas, El Dorado, and one to the Morgan Utilities, Inc., also of El Dorado. The latter includes reservations for future applications for permits covering extensions to its line.

The Public Utilities Corporation's permit covers construction of 75 miles of 10-inch line from the new Johnson County gas field near Clarksville, which will transport gas to Conway, Ark., passing through Russelville, Atkins, Morrillton and other intervening towns. Actual construction work on the line is to be under way May 1.

The Morgan Utilities lines will be 12-inch, extending from the Monroe, La., gas field, 150 miles to the north, through La Pile, El Dorado, Camden, Thornton and Fordyce, with ultimate extension planned to Pine Bluff, and a lateral to Warren. The line is to cost about $1,000,000 and work will begin in 60 to 90 days. The company owns 1,500 acres of leases in a solid block of the Morehouse Parish section of the Monroe gas field. Gas will be furnished direct to the smaller communities along the pipe line and will also be marketed to the distributing companies already having franchises in the larger towns.

WILMOT COMPRESSOR STATION NOW WORKING FOR EMPIRE

The Eastman Compressor station of the Empire Gas and Fuel Company, located three miles northeast of Wilmot, Kan., and six miles southeast of Atlanta, Kan., was placed in operation during the month of April. Construction work on this plant was started March 8, and in view of the inclement weather and bad road conditions exceedingly good time was made in its construction. Howard Blackburn is engineer in charge of the station.

OLD GUARD MEMBER HONORED ON 79TH ANNIVERSARY

On the occasion of his seventy-ninth birthday George G. Ramsdell, librarian of the American Gas Association, and for 23 years secretary of the Society of Gas Lighting, was in April presented a leather case containing two Dunhill pipes, the gift of the Executive Board of the A. G. A. Mr. Ramsdell is one of the famous Old Guard of the gas industry, of which only six are now living. He is a past president of the Western Gas Association and of the American Gas Light Association, and has been a member of the headquarters staff of the A. G. A. since its formation.

FORMER P. C. G. A. DIRECTOR GETS ANOTHER ADVANCEMENT

Upon the resignation of Merrill E. Skinner, commercial manager of the Duquesne Light Company, a subsidiary of the Philadelphia Company, Pittsburgh, Pa., a general sales department, to include that of the light company, the commercial department of the Equitable Gas Company and the Equitable Sales Company, was created, and George E. Whitwell was appointed general sales manager, effective April 1. Mr. Whitwell was a director of the Pacific Coast Gas Association in 1925 at which time he was new business manager for the Tacoma Gas and Fuel Company, Tacoma, Wash. In May, 1925, he became manager of the gas department of the Byllesby Engineering and Management Corporation, and in the fall of 1926 was made general manager of the Equitable Gas Company, which position he held until the creation of the new department which he now heads.

UNION NATURAL GAS CO. BUYS WALLACEBURG GAS COMPANY

The Union Natural Gas Co. of Canada has purchased the plant, franchises and interests of the Wallaceburg Gas Company. The Wallaceburg company was the second organization to distribute natural gas from the Tilbury field, being organized in 1908 by Wallaceburg men, who owned practically all of the stock. The company was supplied with gas originally by the Northern Pipe Line Company, a subsidiary of the Union Natural Gas Co. The purchase of the Wallaceburg distributing company gives the Union direct ownership of all the distributing systems supplied by its pipe lines except that of the Chatham Gas Co. in Chatham, the Windos, Sarnia and Petrolia systems having all been taken over by the Union Natural Gas Co.

U. OF MICHIGAN GETS $10,000 FOR STEEL RESEARCH

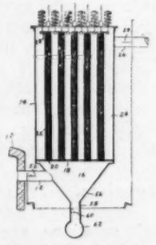
Receipt of an appropriation of $10,000 from the American Gas Association for a program of intensive research in the use of gas for steel treating at the University of Michigan was announced recently by Prof. A. E. White, head of the department of engineering research at the University. A specialist in metallurgy and a staff of laboratory assistants will immediately start a series of investigations into the uses of gas for heat treating of steel and in forging furnaces, the work to be done under the direction of Prof. White.

P. G. AND E. APPLIES TO SERVE IN GRIDLEY, CALIF.

The Pacific Gas and Electric Company has applied to the California Railroad Commission for authority to exercise a franchise, granted by the board of trustees of the City of Gridley, Butte County, to construct and operate a gas distributing system in that city.

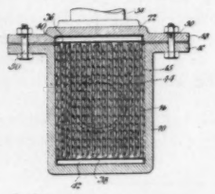
THIS MONTH'S PATENTS PERTAINING TO THE INDUSTRY

1,617,073. APPARATUS FOR SEPARATING PARTICLES FROM GASES AT HIGH TEMPERATURES. CHAUNCEY MATLOCK, New York, N. Y., assignor to Monroe-Louisiana Carbon Company, Monroe, La., a Corporation of Delaware. Filed Nov. 16, 1921. Serial No 515,673. 5 Claims. (Cl. 183—52.)



1 A separating and filtering screen adapted to separate carbon and similar materials from hot flue gases which comprises a filter chamber, a partition in said chamber having a number of openings, tubular screens mounted at their open ends in said openings, a supporting plate to which the upper ends of said screens are attached, rods extending upwardly from said screens through the top of said chamber and springs confined between the tops of said rods and the top of said chamber.

1,597,678. HEAT INTERCHANGER. JAMES P. FISHER, Bartlesville, Okla., assignor to Doherty Research Company, New York, N. Y., a Corporation of Delaware. Filed Oct. 23, 1922 Serial No. 596,223. 8 Claims. (Cl. 257—242.)



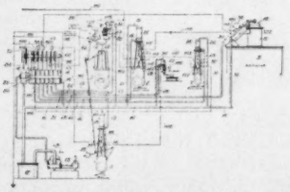
4. In a heat interchanger, a casing having an inlet at one end and an outlet at the opposite end, a longitudinal wall for said casing, an inlet opening into said wall near one end and an outlet from said wall at the opposite end, a partition having its edges inserted between said wall and the edges of the other walls of said casing and having a number of narrow, trough-like passages extending lengthwise of said casing and of a depth only slightly less than that of said troughs, and fillers between the top and bottom portions of said passages and the adjacent walls of said casing, transversely corrugated to obstruct lengthwise passage of fluid

1,607,478. SUCTION VALVE OF AIR AND GAS COMPRESSORS. EDWIN PRESTAGE, London, England Filed July 27, 1926, Serial No. 125,286, and in Great Britain June 18, 1925. 3 Claims (Cl. 230—84.)

1. In an air or gas compressor in combination, a cylinder, a trunk piston working in said cylinder and provided with a mushroom valve, a connecting rod, distance pieces fixed on the top end thereof and a roller adapted to travel between said pieces whereby the said

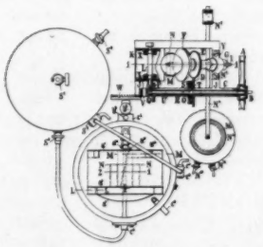
mushroom valve is opened or closed by the oscillations of the connecting rod at predetermined points during the stroke of the piston

1,611,415. MEANS FOR AUTOMATICALLY OPERATING THE VALVES OF GAS SETS. HERBERT N. CHENEY, Boston, Mass., assignor to The Gas Machinery Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 4, 1924 Serial No. 729,950 19 Claims. (Cl 137—144.)



1. In an automatic valve-control apparatus, the combination of a plurality of valves; means for actuating said valves so as to produce a predetermined sequence of valve-operation, and including pressure-operated pistons connected with said valves; and means adapted to operate when the normal sequence of valve-operation is destroyed, to release the pressure upon one side of said pistons whereby all of said valves may be caused to assume concomitantly a predetermined position

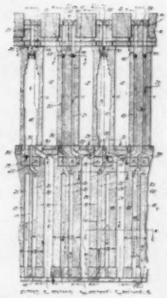
1,617,196. MEANS FOR MEASURING AND DELIVERING GAS AT A KNOWN RATE. CHARLES VERNON BOYS, London, England. Filed Nov. 9, 1921 Serial No. 514,054. 10 Claims. (Cl. 73—1.)



1. Apparatus for maintaining constant the volume of gas if measured at standard temperature and pressure, and saturated with water vapour, passed in unit time by a gas measuring and delivering device operating substantially at atmospheric pressure, notwithstanding possible deviation from predetermined conditions of the barometric pressure and the temperature, including a constant volume measuring element, a constant time-governed source of uniform motion, variable speed mechanism between said element and said source of motion, and means controlling said variable speed mechanism so as to eliminate errors due to such deviation.

1,613,068 COKING RETORT OVEN. JOSEPH VAN ACKEREN, Pittsburgh, Pa., assignor to The Koppers Company, Pittsburgh, Pa., a Corporation of Pennsylvania Filed Feb 14, 1921. Serial No. 444,790. 24 Claims. (Cl. 202—9.)

1. In a coking retort oven, in combination: a coking chamber; heating walls contiguous to such coking chamber and respectively constituted of a series of upburning and a series of downburning combustion flues communicably connected with and alternately positioned with respect to such upburning flues, and also of a series of upflow fuel gas channels, a series of upflow air channels and two series of downflow waste gas channels, the series of said channels being disposed into pairs which alternate with the aforesaid combustion flues and the fuel gas and air channels being communicably connected

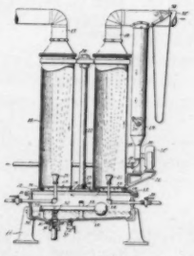


with the downburning combustion flues and both series of waste gas channels with the upburning combustion flues: substantially as specified

1,612,506. FIRE-RETARDANT PAINT. JAMES E. HARRIS, San Francisco, Calif., assignor of one-third to William A. Cassin and one-third to Ursa S. Abbott, both of Richmond, Calif. Filed Apr 5, 1926. Serial No. 99,988. 3 Claims. (Cl. 134—45.)

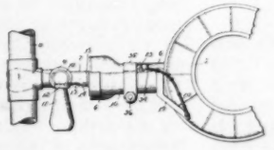
1. A fire retardant paint, as herein described, composed of the following ingredients mixed together in the proportions substantially as described, to-wit, crude oil, powdered alum, litharge, carbon tetra-chloride, sodium silicate and a coloring agent

1,617,534. GAS WASHER. KARL MATHEUS, Chicago, Ill. Filed Jan. 2, 1925. Serial No. 177. 1 Claim (Cl. 261—119.)



In a gas washer for the purpose specified the combination of a hollow base member establishing a liquid chamber, a roof covering over said base member and chamber and having a pair of upwardly facing ports, vertical flues reaching upwards from said ports, a gas inlet connection to the upper end of one of said flues, a gas delivery connection from the upper end of the other flue, spray nozzles in both flues for the introduction of suitable spray liquid, a down-comer from the gas delivery connection, a motor driven fan supported on the adjacent flue and serving to draw the waste gases from said gas delivery connection through said down-comer, a liquid discharge connection from the lower portion of said liquid chamber, and a float valve and float within the liquid chamber to control said liquid discharge connection whereby to maintain a predetermined liquid level in said chamber against the surface whereof the gas impinges in passing from the first flue to the second, substantially as described.

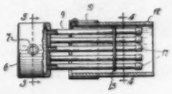
1,616,494. SAFETY CUT-OFF MECHANISM FOR GAS BURNERS. LOUIS HILL, Akron, Ohio. Filed Nov. 1, 1923. Serial No. 672,043. 3 Claims. (Cl. 67—116.)



1 A device of the character described, comprising a gas burner, a mixing tube connected therewith, a jet pipe extending into said mixing tube for supplying gas through said mixing tube to said burner, a valve mounted upon said jet pipe, mechanism connected with said valve for closing the same, a spring connected with said last mentioned mechanism, a casing in which said spring is housed, said casing being provided with an opening, a lever carried by said casing and journaled to rock, said lever being provided with a lug located adjacent said opening in said casing, so that said lever can prevent said spring from causing the closure of said valve, and a thermostatic bar mounted upon said casing and connected with said lever for the purpose of rocking said lever, the thermostatic bar being located adjacent said burner in order to be actuated by heat therefrom

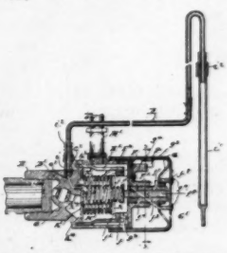
1,616,862. GAS BURNER. TED A. LEWIS, Denton, Tex., assignor to Ted Lewis & Co., Denton, Tex. Filed Apr. 26, 1926. Serial No. 104,591. 2 Claims. (Cl. 158—99.)

1. A gas burner comprising a burner head provided with openings on opposite sides in its periphery for gas feed lines, said openings having pipes extending into the head, the inner ends of the pipes being curved in opposite directions to cause the gas to whirl within the head, tubular burner pipes communicating with the interior of the burner head and spaced apart in one end of said head and provided with perforated burner tips on their outer ends, a cylindrical member spaced apart from



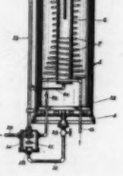
the head and in which the tubular burner pipes are disposed, and an adjustable sleeve on the cylindrical member for air regulation.

1,616,519. CONTROL FOR REGULATING TEMPERATURES. WILLARD I. TWOMBLY, New York, N. Y., assignor, by mesne assignments, to The Wilcolator Company, Newark, N. J., a Corporation of Delaware. Filed May 26, 1922. Serial No. 563,769. 12 Claims. (Cl. 236—15.)



1. In a control for the regulation of temperature, the combination of a bulb subjected to the temperature to be controlled, a bellows connected with said bulb and containing an inert fluid, a casing in which the bellows is mounted, a gas inlet in the casing near one end of the bellows, a gas outlet in the casing near the other end of the bellows, and a valve within the casing for controlling the flow of gas therethrough directly operated by said bellows.

1,612,532. WATER HEATER. LESLIE E. PETERS, San Francisco, Calif., assignor to New Way Manufacturing Company, San Francisco, Calif., a Corporation of California. Filed Mar. 23, 1925. Serial No. 17,562. 5 Claims. (Cl. 236—33.)

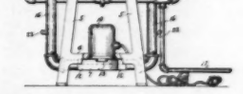


1. A water heater comprising an enclosed casing provided at its bottom with a burner, a reservoir located inside the casing having a water inlet pipe connected to the top thereof, a coil connected to and encircling the reservoir, a thermostatic control means extending into the reservoir through the top thereof, which said thermostatic control means is operated by water entering the reservoir through the inlet pipe, means located on the top of the casing and connected to a valve for admitting fuel to the burner located at the bottom of the casing, which said means is operated to open and close the valve by the thermostatic control means, and a pilot burner located under the said reservoir, whereby the water in the said reservoir may be maintained in a heated state

1,611,099. RADIATING ELEMENT FOR GAS HEATERS. CHARLES S. WAGNER, Fords, N. J., assignor to General Ceramics Company, Keasby, N. J., a Corporation of New Jersey. Filed Oct. 21, 1926. Serial No. 143,254. 5 Claims. (Cl. 126—92.)

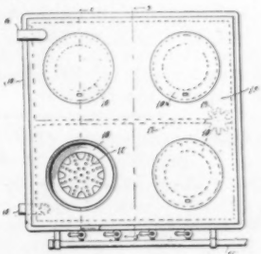
1. A radiating element for gas heaters, comprising a rod of porous refractory earthy material having an erosely roughened surface.

1,615,087. FURNACE. ARTHUR B. KIDDER, Canton, Ohio, assignor to The Kidder Furnace Company, Canton, Ohio. Filed July 17, 1923. Serial No. 652,094. 2 Claims (Cl. 158—7.)



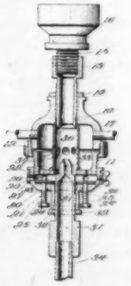
1. A furnace of the character described including a rectangular heating chamber, a pair of upright frames supporting the heating chamber, a horizontal cross bar upon each frame, an inwardly disposed lug upon each cross bar, a fan casing provided with ears connected to said lugs, an outlet pipe connecting each side of the fan casing with the adjacent side of the heating chamber, said pipes entering the heating chamber at diagonally opposite corners, and a gas burner extended into each pipe and terminating in a conical end spaced from the interior of the heating chamber

1,613,454. GAS-RANGE WATER TOP. PETER GUSTASON, Long Branch, N. J. Filed Nov. 18, 1924. Serial No. 750,624. 1 Claim. (Cl. 126—53.)



A gas stove provided with a water top of substantially rectangular form, said top having two pairs of burner openings, the edges of the top at said openings being inclined upwardly and outwardly, said openings at the top being shaped to receive lids adapted to directly rest on the uppermost inclined walls, burners for said openings, said top interiorly thereof between the pairs of openings having a partition extending from one wall and terminating relatively close to the other wall, and an inlet and an outlet connection at one side of the top and at the corners in communication with the top on opposite sides of said partition, and an auxiliary burner for the top adjacent the distal end of the partition whereby the water on each side of the partition will be equally affected.

1,613,388. GAS MIXER. FRANK W. GAULT, Jr., Louisville, Ky., assignor of one-half to H. J. Greive, Louisville, Ky. Filed Oct 22, 1925. Serial No. 64,181 6 Claims (Cl. 158—109.)



1. The combination of a sectional mixing chamber having intake and outlet openings, a tubular perforate diaphragm mounted in the mixing chamber and having the bore thereof in alinement with the intake and outlet openings, means for connecting the sections of the mixing chambers together and holding the diaphragm in position, means for delivering gas to the mixing chamber and a compressed air nozzle supported by the mixing chamber and arranged in alinement with the intake opening for delivering compressed air to the diaphragm

SKUNK PUTS P. G. AND E. MEN ON THEIR METTLE

J. Charles Jordan, manager of the publicity department for the Pacific Gas and Electric Company, writes us this one:

Near the town of San Pablo, Calif., P. G. and E. workmen were laying a line to connect with the mains of the Contra Costa Gas Company. Coming on the job one morning a peculiar odor was manifest, which was not of the pure P. G. and E. gas product. It was finally traced to a length of pipe from which two glistening eyes gleamed defiance. After resorting to brickbats, hammering on the pipe, and even sending in a charge of acetylene gas—all to no avail—a second acetylene charge was put in the pipe, and ignited, which effectively dislodged Mr. Skunk. P. G. and E. men were scarce in that vicinity, until a farmer produced a shot gun and brought the dazed animal to an untimely end.

TEXAS COMPANY DRILLS SEEK GAS FOR KANSAS CITY

In anticipation of an industrial franchise to supply Kansas City with natural gas, The Texas Company has started a program of drilling only gas wells in Gray and Carson Counties of the Panhandle field. Six gas wells in one week recently contributed a total available supply of 101,000,000 cubic feet daily production. About a dozen more wells are drilling for this company, which has a total of around 100,000 acres under lease in the gas productive territory.

NEW OFFICE IN CHICKASHA

The Southwestern Light & Power company has received bids for erection of a two-story office building at Fifth street and Chickasha avenue in Chickasha, Okla. The building will have strength to bear an addition of three stories. The entire building will be devoted to the offices, storerooms and shops of the company.

IOWA PARK, TEX., GETTING GAS FROM PANHANDLE

The Upham Gas Company has reached Iowa Park, Texas, 15 miles west of the city of Wichita Falls, and has almost completed the laying of gas lines inside of the city limits, amounting to eight miles of distributing mains. The company expects to have gas burning in the homes of Iowa Park by the first of May. The natural gas is piped from the Panhandle gas fields.

GAS COCKS MAY BE SUBJECT OF SIMPLIFICATION WORK

The National Committee on Metals Utilization of the Department of Commerce has had its attention called to the large variety of sizes and dimensions of gas cocks on the market. Leading manufacturers of these lines are now being consulted by the Committee to determine whether there is a desire to bring this field within the scope of the Department's simplified practice work.

DRURY COMPANY IN NEW SAN FRANCISCO LOCATION

Newton B. Drury, president of the Drury Company, advertising firm of San Francisco, announces removal of company offices to the Adam Grant building, 114 Sansome street. The agency handles advertising of a number of important gas industry accounts, including the C. B. Babcock Company, General Gas Light Company (for the West), H. R. Basford Company and the San Francisco Gas Appliance Society, and Mr. Drury as a member of the P. C. G. A. has taken much interest in association activities.

STANDARD GASOLINE'S SOUTHERN DIVISION IN NEW HOME

New quarters have been provided the southern division of the Standard Gasoline Company on the South Whittier Community Lease of the Standard Oil Company of California. Buildings formerly used by the production department of the Standard Oil have been remodeled for the gasoline company, and buildings and material located at the former Santa Fe Springs Camp have been moved to the new division headquarters.

CONSOLIDATE 13 COMPANIES OF EASTERN KANSAS

The Union Public Service Company of Kansas City, Mo. has filed an application with the public service commission in Topeka to consolidate thirteen companies of eastern Kansas into a single corporation. All of the stock of the utilities involved is now held by the Union, which is a Doherty property. The eastern Kansas companies to be consolidated are:

Anderson County Light and Heat Co., of Garnett; the Baldwin Gas Co., of Baldwin; Edgerton Gas Co., of Edgerton; Johnson Gas Co., Olathe; Gardner Gas Co., Gardner;Kansas Farmers Gas Co., Ottawa; Ottawa Gas and Electric Co., Ottawa; Parsons Gas Co., Parsons; Richmond and Princeton Gas Co., Tri-City Gas Co., Altoona and Cherryvale; Weir Gas Co., Weir; Wellsville Gas Co., Wellsville, and the Miami County Gas Co., of Paola.

HIGH PRESSURE HOLDERS FOR SOUTHERN COUNTIES GAS CO.

The Southern Counties Gas Company is to install three new high pressure gas holders in Anaheim, Pomona and San Pedro at a cost of $110,000 each. They are all of 1,000,000 cubic foot capacity. Work of installation will begin immediately.

ALLOW RATE INCREASE

Gas rates have risen from 45 cents a thousand to 80 cents in Rantoul, Kan., as a result of an order issued by the public service commission in April. Miami County Gas Co. serves Rantoul.

RENEW MULVANE FRANCHISE

Western Distributing Company, serving some 35 Kansas communities with gas, was granted a 20-year renewal of franchise in Mulvane, Kan., by vote of the city council late in March.

L. A. GAS AND ELECTRIC TO ISSUE $563,000 IN BONDS

Los Angeles Gas and Electric Corp. has received authorization from the California railroad commission to issue and sell $563,000 in Series "J" general and refunding mortgage bonds. Proceeds will go in part toward financing additions and changes in the corporation's properties.

PRIZES OFFERED FOR PAPERS ON ADVANCED WELDING PRACTICE

The American Society of Civil Engineers has accepted the custody of $17,500 given by the Lincoln Electric Company of Cleveland, Ohio, to be awarded in a world wide competition for the three best papers disclosing advancement in the art of arc welding. Three prizes will be awarded, $10,000, $5,000 and $2,500. All papers to be considered must be mailed before January 1, 1928, and must comply with certain other rules. Further information may be obtained from Calvin W. Rice, Secretary of the American Society of Civil Engineers, 29 West 39th Street, New York City.

SERVICE EMPLOYEES IN PANAMA USE SPECIAL CARD

Representatives of the Panama-Colon Gas Company, serving residents of the Republic of Panama, when they call at customers' homes have with them a card giving the name of the employee and carrying the slogan "A Satisfied Customer is our Best Asset" at the top. The reverse side provides room to state the reason for the call, in case the resident was found away from home. Also a blank is left for inserting the date of the next call, with the request that the company be notified by phone if the suggested time is inconvenient. These cards, which the company feels contribute considerably to good public relations, are printed in either English or Spanish.

NATURAL GASOLINE RATE CHANGES MADE

Two decisions involving the reasonableness of rates on natural gasoline from points in Texas and Oklahoma to destinations in official and southern freight territories, were handed down by the Interstate Commerce Commission on April 13. Reasonable rates from Bartlesville, Bryant, De Noya, Shidler, Pershing and Fite, Okla., to Bayonne and other points in the New York port territory were prescribed in addition to an adjustment of rates from the Ranger-Breckenridge district in Texas to Brunswick, Georgia. In other respects the schedules of existing rates from the fields in Oklahoma and Texas were left standing.

C. P. CLARK ON COAST

C. P. Clark of Olean, N. Y., was a Pacific Coast visitor during April, inspecting local gas and oil fields in company with A. R. Hoffman of Smith-Booth-Usher Company, local distributors for C'ark Brothers compressors. Mr. Clark will visit Texas and Mid-Continent fields on his return to New York.

LINE TO WICHITA FALLS, TEXAS IS NOW COMPLETE

The Hope Engineering and Supply Co. has announced completion of a 200-mile pipe line serving nine towns for the Northern Texas Utilities Company. The line carries natural gas from Wheeler County to Wichita Falls, Texas.

A. G. A. MOVES OFFICES TO NEW GRAYBAR BUILDING

On April 18 the headquarters office of the American Gas Association was officially opened on the fifth floor of the new Graybar Building, 420 Lexington Ave., New York City, 43rd and 44th Streets.

JAMES B. PORTER, PROMINENT OKLAHOMA GAS MAN, DIES

James Bennett Porter, special representative of the Oklahoma Natural Gas Corp., died at Tulsa, Okla., on March 29. Mr. Porter had been connected with the gas industry in Tulsa since 1915, having been pipeline superintendent of the Oklahoma Natural Gas Corp. before his appointment as special representative. At the time of his death he was chairman of the gas division of the Oklahoma Utilities Association.

FREDERICK, OKLA., OFFICE OF COMMUNITY NATURAL GAS

The new Frederick, Okla., office building of the Community Natural Gas company, a subsidiary of the Lone Star Gas company, has been completed and will be occupied soon, according to C. C. Moore, superintendent. The building will serve for offices, storeroom and shops of the company.

Treating Recycled Gas *in* Seminole Field

(Continued from Page 31)

again and again.

Since the gas lift systems employ compressors for the purpose of raising the pressure of the residue gas to be injected into the wells, it follows that these compressor plants are operating in a double capacity. They extract the gasoline from the gas by compression methods, collecting the condensed gas in accumulator tanks which are automatically controlled, and dumping the condensate into storage tanks under plant operating pressure; and they force the dry residue gas from this point to the individual wells which are artificially flowed. It is estimated roughly that in the Seminole area there are some forty individual gas-lift and gasoline-extracting compression plants, as well as a great number of compression plants flowing wells under air lift systems, and many plants which are so equipped and connected that they may either compress natural gas or air.

In recycling the dry gas in the Seminole field, both that production which is native to the field and that which is imported from other sections, the returned or enriched gas yields by compression methods, between three and four gallons of gasoline per thousand cubic feet. The compression plants, for the most part, are two stage systems with the gas cooled between stages, and cooled again after the high pressure compression. The gasoline is condensed out of the compressed gas after the high stage operation, which varies in the field practices from 200 to 300 pounds pressure per square inch. This pressure is governed entirely by the amount of pressure required to flow the wells artificially. The gasoline produced is disposed of either by weathering it to grade and shipping it in tank car lots sold on the open market, or by blending it back into the crude oil produced, thus raising the gravity of the crude—which increase in gravity is reflected in increased prices of the crude per barrel.

Many of the plant installations in the Seminole area use electricity for power purposes in the operation of the compression machines. Due to the activities of the Oklahoma Gas and Electric Company, the field since its early development has been adequately serviced with electricity. While the electric type of installation is popular in the area, a number of plants consist of gas engine driven compressors, with a few being steam driven.

ABSORPTION PLANTS AT SEMINOLE

The absorption type of gasoline extraction plant has also been installed in the Seminole area. Many of them operate at low pressures, receiving the returned and enriched natural gas from the wells at pressures ranging around 30 to 40 pounds per square inch. The gas is collected through gathering lines from the separators at the wells, boosted to the operating pressure of the absorption plant and discharged through the absorbers. This type of plant extracts more gasoline from the gas than does the compression type of installation, usually stripping between four and five gallons of gasoline from each thousand cubic feet treated. After the extraction process, the residue gas from the absorbers is again compressed to higher pressures and injected into the oil wells for flowing purposes. Thus, this type of plant requires double compressing. It is anticipated that in the near future the high pressure absorption plant will make its appearance in the area, and this system will tend to eliminate one compression of the gas, discharging its residue gas at sufficiently high pressures to flow the oil wells, and accomplishing greater efficiency of operation due to the fact that the gasoline yield will be materially increased, and the installation of high pressure compression plants will be obviated.

The accompanying illustrations show something of the type of plants installed for gasoline extraction and oil well flowing purposes in the Seminole district. Probably the largest single installation in the field is that of the Amerado Petroleum Corporation, the plant consisting of 25 electric motor driven compressors. The Carter Oil Company is the largest oil producing operator in the field, and is also the largest user of gas lift methods of producing in the territory. This company operates 16 compression plants in which it has a total of 129 compressor machines. The Pure Oil Company, with a total of 37 compressors installed on one centralized location, and flowing 13 wells by air-gas lift methods, is producing around 30,000 bbls. of oil daily; and in conjunction with this large volume of oil produced the company extracts daily about one gallon of gasoline for each barrel of oil produced—or around 30,000 gallons of gasoline.

Just what the total production of natural gasoline for the field is at present is not determinable. The intensive application of gas lift methods, however, in this major field, has, because of its striking success, opened the way for a much more extensive application of the system in other "flush" and older fields in the industry. If fullest operating economies and maximum conservation are to be achieved, the natural gasoline manufacturing industry must follow in the wake of the new practice.

Announcing

Pacific Coast Representative

C. B. BABCOCK CO.

135 Bluxome St. **San Francisco, Cal.**

3 Bushel Cap., Gas Fired

For

KLEENBURN CINERATOR

for homes—stores—schools, etc.

Retail Price $100.00 on Coast

The Public is waiting for a gas fired Incinerator of this size and at this price.

THE NEED IS HERE—the people want this latest of modern gas appliances because it means greater sanitation and more convenience in their homes.

They Expect to Buy It at the Gas Company

Carried in stock at San Francisco

THE KLEENBURN COMPANY

Milwaukee, Wis.

Smith-Emery Co.

Chemists—Engineers

Established 1910

Analyses and tests.
Represent Pittsburgh Testing Laboratory
for inspection at Eastern foundries, mills and shops

Offices & Laboratories

245 So. Los Angeles St.
Los Angeles

651 Howard St.
San Francisco

NOW SELLING ROCK GAS

A. L. Lamoreaux has left his work with the Southern Counties Gas Company at Pomona, Calif. to take charge of sales of Rock Gas and gas appliances in Ventura County, with headquarters at 401 4th Street, Oxnard, California. M. E. Hampton of the Southern Counties' Pomona office has taken Mr. Lamoreaux's place on the Pomona sales staff.

A. G. A. TO EXHIBIT AT STEEL MEN'S CONVENTION

The American Gas Association has leased approximately 15,000 sq. ft. of space to provide for a gas exhibition at the annual meeting of the American Society for Steel Treating, to be held in Detroit, Michigan, in September.

GAS PLANT MAY BUILD IN CHARLESTON, MO.

The Great Northern Utilities Company of Chicago has made overtures to establish a gas plant in Charleston, Mo., from which gas would be piped to a number of neighboring towns.

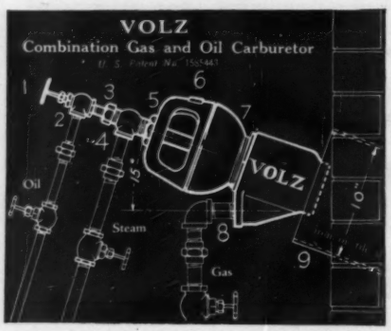
PARSONS COOKING SCHOOL

Under the auspices of the Parsons, Kan., Daily Sun, a cooking school was held recently in that community, with the Parsons Gas Co. participating in demonstrating the appliances on display. Attendance ran close to 600.

OJAI VALLEY MAY GET GAS

Southern Counties Gas Company is considering extending its mains in the Ventura, Calif. district to reach Ojai Valley, which would mean laying 10 miles of pipe.

The Combination
Gas and Oil Carburetor



Volz No. 34

Burns gas, or oil, or gas and oil combined. Melts a heavy duty 3″ iron tee in 11 minutes. Changes from gas to oil or vice versa without least drop in steam pressure. Gases show high carbon dioxid content. Guaranteed to maintain steam pressure under heaviest load with gas at 4 oz. pressure upward or with lowest grade fuel oil.

VOLZ ENGINEERING EQUIPMENT COMPANY
502 EAST THIRD STREET
LOS ANGELES, CALIFORNIA, U. S. A.

NATURAL GAS GASOLINE USED TO POWER AIRPLANES

Results of tests of Grade A natural gasoline which indicate that the product in its natural state is an excellent airplane fuel have been released by the research department of the Association of Natural Gasoline Manufacturers. The natural gasoline is reported to have given aviators the ability to take off more quickly, attain a higher motor speed and climb to a greater height in less time.

QUINTON, OKLA., TO HAVE BUT ONE GAS COMPANY

The Oklahoma corporation commission has authorized the McAlester Gas & Coke Company, which has been distributing gas in Quinton, Okla., and McAlester, Okla., to sell its property in Quinton to the Quinton Relief Oil & Gas Company. Citizens of Quinton in 1915 voted to give the McAlester company a 25 year franchise, also giving a similar franchise to the Quinton Relief Oil & Gas Co., and since that time both companies have been distributing gas in the town. Under the present arrangement the town will be furnished gas by only one company.

M. R. BROWN MANAGER OF GAS COMPANY AT ROSEBURG, ORE.

M. R. Brown is now local manager of the Southern Oregon Gas Co. in Roseburg, Ore. W. H. George, general manager of the utility, made the appointment, effective early in April.

F. R. BAIN BACK FROM EUROPE

F. R. Bain, president of the Southern Counties Gas Company, Los Angeles, accompanied by Mrs. Bain, arrived in New York on April 22 on the Cunard Line steamer "Berengairia" after a three months stay in Europe. Mr. Bain expected to be in Los Angeles by May 4.

HOUSTON PIPE LINE TO EXTEND TO GALVESTON, TEXAS

Upon completion of the Houston Pipe Line Company's extension of its pipe line from Alvin to Texas City, the line will then be extended across the bay and into the city of Galveston for the distribution of natural gas through local lines for both domestic and industrial consumers. Construction of the first extension is well under way.

BRICK PLANT IN WYOMING USING NATURAL GAS

Gas fuel from the Mahoney Dome gas fields of southern Wyoming has made possible a new industry in that section, that of brick manufacture. A plant located at Rawlins, with monthly capacity of 300,000 bricks, began operation early in April.

L. A. G. & E. EARNINGS UP

Cool weather for the first three months of 1927 brought increased returns for the Los Angeles Gas and Electric Corp. Net earnings for the first quarter amounted to $2,179,857.01, as compared with $946,901.03 for the same period of 1926—a gain of $1,232,955.98.

MOVES NEW YORK OFFICE

Merco-Nordstrom Valve Company is moving its New York office from 110 West Fortieth Street to 11 West Forty-second Street effective May 1.

NEW CONCORDIA MANAGER

M. J. Collins, formerly of Vinton, Iowa, is now manager of the Concordia Gas Co., Concordia, Kan.

OKLAHOMA G. & E. THRIFT CLUB INVESTS $30,000 IN COMPANY

Four hundred members of the Oklahoma Gas & Electric Co. Thrift Club invested $30,000 in company stock last year, and hope to raise their total to $50,000 for 1927. Employees, by pooling their resources through the club plan, draw regular dividends instead of the six per cent paid on the installment plan of stock purchase.

BORGER AREA GETS ANOTHER LARGE GASOLINE PLANT

Construction work has begun on the new absorption gasoline extraction plant for Maupin & Burnett on their Dunnigan lease, S.E. S.W. Section 21, Block Y, of A & B Survey in the Borger, Tex., area of the Panhandle field, Hutchinson County. The plant under construction is a three-unit Southwestern type 75, and when completed it will have a rated capacity of 36,000 gallons of gasoline daily. Associated with Maupin & Burnett are Nelson C. Stein and A. Sackin, both financiers of Hollywood, Calif., who were visitors recently to the productive area of the Panhandle.

A. G. A. BINDER TO FILE LIST OF APPROVED APPLIANCES

A loose leaf leather binder in which to file lists of A. G. A. Laboratory-approved appliances is now being put out by the American Gas Association. The list of appliances approved as of February 1, 1927 will be sent with the binder, and with a monthly service giving later approvals, for the price of $2.00.

WITH HOFFMAN HEATER CO.

Lawrence R. Payne, formerly connected with the sales department of the Pacific Gas & Electric Company at San Jose, is now with the Hoffman Heater Company with headquarters at 452 Powell Street, San Francisco.

CAPE GIRARDEAU TO HAVE NEW GAS HOLDER

A new all-steel gas holder, to cost $20,000. which will have twice the capacity of the present container, will be erected in Cape Girardeau, Mo., by the Missouri Utilities Co., to supplement its new gas plant which is being completed.

BOOKLET ON "AD COPY"

"Good Copy," a book dealing with the technique of newspaper advertising prepared by the Bureau of Advertising of the American Newspaper Publishers Association, can be secured from the American Gas Association free of charge.

$5,000,000 TEXAS LINE PROJECT IS TWO-THIRDS COMPLETE

Two-thirds of the Lone Star Gas Company's 185-mile 18-inch natural gas line, which is to bring gas from the Texas Panhandle district to cities of northern and central Texas, is already complete. Fort Worth, Dallas, and cities along the route of the $5,000,000 line will be assured ample supplies of natural gas by this project, and industrial consumers in particular are expected to benefit.

NEW SOUTHWESTERN FACTORY

On April 20 the Southwestern Engineering Corporation opened its new factory at 4800 Santa Fe Avenue, Los Angeles.

TECUMSEH LINE FINISHED

R. S. Shade, who has a franchise to serve Tecumseh, Okla., with gas, has completed his line from the Seminole field to city limits.

PLANT ADDITION

The Springfield Gas & Electric Co., Springfield, Mo., is to build an addition to its gas plant at an estimated cost of $10,000.

ASK ARKANSAS COMPANY TO LAY MULDROW GAS SYSTEM

Citizens of Muldrow, Okla., are negotiating with representatives of the Citizens Gas company, an Arkansas concern, for construction of a gas distribution system in Muldrow. A franchise election will probably be held soon.

PONTOON BRIDGE IMPROVISED BY NATURAL GASOLINE WORKERS

Using oil drums as floats, the construction department of Standard Gasoline Company recently improvised a 60-foot pontoon bridge to carry a pipeline over a body of water near the company's Seal Beach, Calif., plant.

COAL DISTILLATION TO YIELD VALUABLE LIQUID PRODUCTS

Gas and coke residue obtained in coal distillation can be converted into liquid fuels by chemical processes now under development. Professor Harry A. Curtis of the chemical engineering division of Yale University's Department of Chemistry states that this division is undertaking a study of chemical treatment of oils derivable from coals, to make them suitable for internal combustion engines.

EMPIRE GAS AND FUEL TO USE GAS LIFT IN PANHANDLE

Following its success with air and gas lift systems for flowing oil wells in the Seminole area the Empire Gas & Fuel Co. contemplates the early installation of similar equipment in the Panhandle of Texas. The first of the equipment for the Panhandle district has been ordered and consists of two compressors which will be electrically driven by 75 horse power motors and will be installed on the Empire's Weatherly lease at Borger.

FEDERAL GASOLINE CO. PLANT NOW WORKING IN PANHANDLE

The new gasoline extraction plant of the Federal Gasoline Company, in the South Hutchinson field of the Texas Panhandle which has been under construction for the past few weeks, is now completed and in operation. The company is running on natural gas formerly handled by the Phillips Petroleum Company, during the period of construction of the new installation. The Federal's plant is located on leases owned by the Pantex Pipe Line Company.

GRANT FRANCHISE TO SERVE SOUTH HAVEN, KAN.

In an April meeting the city council of South Haven, Kan., granted a twenty-year gas franchise to W. R. McFadden of Lyons and E. W. Hurst of Winfield. A natural gas distribution plant will be constructed in South Haven, construction to begin within six months.

PUBLISH UTILITY BULLETINS

The American Gas Association, American Electric Railway Association and National Electric Light Association have joined in publishing a series of four educational bulletins dealing with electricity, telephone, manufactured gas and the electric railway. These are 12-page bulletins for distribution by utility information committees in states where bulletins with definite local information and application have not been published. The Oklahoma bulletins are 16-page and are attractively illustrated with Oklahoma utility views.

THERE IS A

PABCO PRODUCT

TO PROTECT EVERY SURFACE

TRADE MARK PABCO PRODUCTS

PAINT ROOFING SHINGLES
FLOOR COVERING PIPE COVERING
WALL BOARD VARNISHES
INDUSTRIAL SPECIALTIES

THE PARAFFINE COMPANIES, INC.

San Francisco Oakland Los Angeles Seattle Portland

PIPE

Montague-Wade Safety Water-Tube Boiler

Guaranteed more pounds pressure, horse-power for horse-power. Gets up full head of staem quicker—won't blow up—can be cleaned quickly—easily.
1 to 20 h. p. and larger.
Full details and prices upon application.

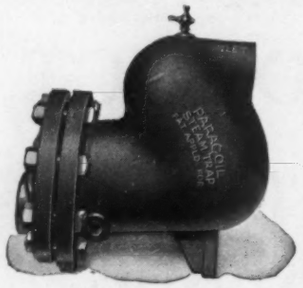
Montague pipe and other steel products have stood the test of time. You'll find it a good investment to use them.

Riveted Steel Pipe
Well Casing
Concrete Forms
Stacks
Welded Steel Pipe
Oil & Water Tanks
Siphons
Flumes

MONTAGUE PIPE & STEEL CO

San Francisco California

PARACOIL



FOR

condensation in Gas, Air or Steam Lines. Try one ahead of an orifice meter troubled with condensate.

Also suitable as a liquid level regulator

The Paracoil is a constant flow trap with a liquid seal on discharge valve. And if you enjoy good design, you should see the Paracoil valve. Send for catalog.

We have other good things too

JENSEN INSTRUMENT CO.

443 S. San Pedro Street
Los Angeles
950 Parker Street
Berkeley, Calif.

Are you including **Minneapolis Controls** in every heating installation?

The "MINNEAPOLIS" HEAT REGULATOR

The heart of the heating plant

Minneapolis is the proven control. National advertising makes it easy to sell. You are giving your customer the best there is and making additional profit for yourself. This means more satisfaction all around.

Arthur F. Erickson Co.

Pacific Coast Distributors

SELLING BUILDING
PORTLAND, OREGON

Branches or Dealer stocks in principal Pacific Coast cities

NATURAL GAS GASOLINE OPERATIONS

Compiled by E. T. Knudsen
Department of Commerce, Bureau of Mines, Division of Mineral Resources and Statistics

ONE HUNDRED and forty-nine natural gas gasoline plants with a daily indicated capacity of 1,384,025 thousand cubic feet, report a recovery of 41,315,907 gallons of natural gas gasoline from 29,264,487 thousand cubic feet of gas treated in March. This is a decrease of 862 barrels in daily average production.

Utilization of natural-gas gasoline amounted to 875,730 barrels, an increase over February of 102,390 barrels. Daily average utilization of 28,249 barrels was 3,484 barrels less than daily average production of 31,733 barrels.

Stocks of natural-gas gasoline at the end of February amounted to 567,677 barrels of which 30,624 barrels were reported by natural-gas gasoline plant operators and 537,053 barrels by refinery operators. This is an increase of 107,982 barrels over February stocks. This stock figure of 567,677 barrels is approximately twenty days supply at the current rate of consumption.

Production of gasoline during the month of March amounted to 4,727,350 barrels, a daily average of 152,495 barrels. This is an increase of 200,595 barrels or 4.43 per cent over February output and an increase of 718,750 barrels or 17.93 per cent over the output of March, 1926.

Of the gasoline produced 4,495 barrels were reported as finished gasoline produced by natural-gas gasoline plant operators. Production of gasoline from Cracking Processes increased in March to 372,232 barrels.

Stocks of gasoline show an increase of 496,098 barrels during March and at the end of the month amounted to 13,152,640 barrels. This stock figure includes 51 barrels of finished gasoline reported by natural-gas gasoline plant operators.

CALIFORNIA NATURAL-GAS GASOLINE PRODUCTION DISTRIBUTION AND STOCKS

March, 1927

PRODUCTION *Type of Plant*	*Gas Treated M. C. F.*	*Natural-Gas Gasoline Produced Gallons*	*Gasoline Recovery Per MCF Gas Treated*
Oil Absorption	12,657,706	18,765,229	1.483 Gal.
Compressor	288,477	500,065	1.733 "
Combination Comp. and Oil Absorption	9,569,317	15,296,810	1.599 "
Combination Oil and Charcoal Absorption	5,515,301	6,616,838	1.200 "
Charcoal Absorption	1,233,686	117,467	.095 "
Drip	.....	19,498	..... "
TOTALS	29,264,487	41,315,907	1.412
Finished Gasoline produced at plants			4,495 Bbls.

DISTRIBUTION			
Stocks First of Month	..... Bbls.	459,695 Bbls.
Production during month	..... "	983,712 "
Quantitiy mixed with crude or unfinished oils	341,471 "	
Used in Blending at Refineries	517,694 "	
Stocks end of month	567,677 "	
Used at Plants, Shortage and Evaporation losses	16,565 "	
TOTALS	1,443,407 Bbls.	1,443,407 Bbls.

STOCKS		
Natural-gas gasoline held by Natural-gas Gasoline Plant Operators	1,286,192 Gal. or	30,624 Bbls.
Natural-gas gasoline held by Refiners	22,556,226 " "	537,053 "
TOTALS	23,842,418 " "	567,677 "
Finished Gasoline (Motor Fuel) held by Natural-Gas Gasoline Plant Operators		51 Barrels

STANDARD CHANGES METHOD OF TESTING DISCHARGE GAS

Plant discharge gas in the northern division of the Standard Gasoline Company, large California natural gasoline operator, is henceforth to be tested weekly using low temperatures to condense out the gasoline. Twenty-four hour samples were run in the method previously used.

The test proceeds in the following manner:

A measured quantity of the gas to be tested passes through a small orifice meter into the testing apparatus at a rate of about 0.9 cubic feet per hour. This slow rate allows all of the gasoline fractions to be condensed. As the gas passes from the meter to the freezing tube all water vapor is extracted by a calcium chloride drier, leaving only the more or less "wild" gasoline vapors to be condensed. This is done in a tube surrounded by a mixture of carbon dioxide snow and ether which produces a temperature of minus 106° F. The condensate is weathered for thirty minutes at 0°F. in an alcohol-ice mixture and the gallons per thousand cubic feet of gas is computed from the measured liquid remaining. It is again weathered for fifteen minutes at sixty degrees and read to obtain a measure of the quality of gasoline condensed. The 0°F weathering has been found most satisfactory for checking plant operation. Tests on the absorber intake are run in the same manner except that the rate is still slower, being about one-half cubic foot per hour.

VENTURA FUEL BUILDS PLANT TO EXTRACT GASOLINE

Ventura Fuel Company's $150,000 natural gasoline high pressure absorption plant, equipment for which was fabricated by J. A. Campbell of Long Beach, Calif., is in process of construction at Saticoy, Ventura County. Natural gas en route to Los Angeles through the company's 15-inch main from the Ventura Avenue fields will pass through the plant. Operation o the plant is expected to start about June 1.

TEXAS OPERATOR TO HAVE LARGE GASOLINE PLANT AT SOMERSET

A $500,000 compression plant for recovery of gasoline from natural gas is now under construction near Somerset, Tex. P. S. Powell of San Antonio negotiated a deal with the producers of the Somerset field and Oscar J. Berand, whereby Berand will erect the gasoline plant, to handle the production from this field, which for some time has been used but very little. The plant will have a capacity of 7,000 gallons daily, and completion of the installation is expected within six months, including the laying of all gathering lines throughout the field and to the plant. The plant is being built southwest of the town of Somerset. O. J. Brand was formerly an executive of the Skelly Oil Company, Tulsa, large manufacturer of natural gasoline.

STANDARD GASOLINE HAS MANY CONSTRUCTION PROJECTS

Standard Gasoline Company's construction department has a steady run of demands upon its time lately. Work is under way on the Huntington Beach Plant No. 8, where five Cooper Engine compressor units will operate under 30-pounds pressure. Four Southwestern absorbers, and two distillation units will also go into this plant, which is expected to operate by May 10.

Construction is also progressing on Ventura No. 5 for the same company. This plant will operate at 55 pounds pressure. Bessemer engines are being installed, and a twin Bessemer will drive the line shaft. Steel buildings, which will be interchangeable over the company's system, are going into this plant. Ventura No. 5 should be working the latter part of May.

ASK BIDS FOR GAS FROM ELK HILLS RESERVES

Advertisements for bids for the sale of the natural gas derived from naval oil reserves Nos. 1 and 2, at Elk Hills, California, have been prepared, the Department of the Navy announced orally on April 25th. The bids are to be opened on May 2 at the office of the Inspector of Naval Petroleum Reserves in Los Angeles.

A. P. I. MEET AT CHICAGO

The Eighth Annual Meeting of the American Petroleum Institute will be held at the Stevens Hotel, Chicago, Illinois, December 6, 7 and 8, 1927.

MORE GASOLINE PLANTS NOW IN BOWLEGS FIELD, OKLAHOMA

The Empire Gasoline Company's Livingston absorption gasoline plant in Section 15-8-6, Seminole County, Bowlegs field, was placed in operation early in April. The plant is making about 10,000 gallons of gasoline daily, with only a small percentage of the potential natural gas being treated. Construction work on this plant was started January 20. The Livingston plant is designed to operate on back pressure on the wells from which its gas supply is derived. The equipment consists of one 5ft. by 28ft. absorber tower, one Southwestern Type 75 portable gasoline plant, a power plant of three 75-h. p. field type boilers, a large water cooling tower and necessary working storage for gasoline and absorption oil, with two water wells, office and garage buildings. Gasoline manufactured at the plant is pumped to storage at Empire's Lacey plant as fast as it is produced. The newly completed Empire Davis plant in the same area is similar in size to the Livingston installation, but consists of C. F. Braun Company equipment, with two Braun absorbers. No compressor equipment is used at either plant.

THE LOAD WELL DISTRIBUTED

A Short Talk to Gas Company Executives

Heating Element of the Payne Unit Furnace (Casing Removed) 30,000 installed on Pacific Coast.

THE Heating Load need not be one of distressing peaks and valleys.

If it could be possible to have all your heating business gained through Payne Gas Furnace heating systems installed the Payne way you would be surprised at the evenness of your line loads.

Payne Unit Furnaces instead of large central heating plants, thermostatic and push button controls so worked out that in the consumers' natural daily routine they distribute the load to your advantage help wonderfully. We will gladly consult with you and give you our plan. Let's co-operate. It will pay you as well as us.

Have you our new Catalog 27-A? It's FREE.

PAYNE FURNACE & SUPPLY CO. INC.

Main Office, 338 Foothill Road, Beverly Hills, Calif.
Branch, 2247 Grove St., Oakland, Calif.
Branch: 115 E. Union St., Pasadena, Calif.
Branch: 478 Sutter St., San Francisco, Calif.

J. B. GILL CORPORATION

NATURAL GAS ENGINEERS

COMPRESSOR PLANT DESIGN AND CONSTRUCTION

P. O. BOX 669

LONG BEACH - - - CALIFORNIA

MAAS Oxide

Removes the Maximum Hydrogen Sulphide from Gas

A highly potent Commercial Compound developed after careful research and exhaustive tests in the Maas Laboraories and used extensively by Gas Companies for removing Hydrogen Sulphide from gas at low cost with high efficiency.

Manufactured By

Arthur R. Maas

Chemist

308 East Eighth St.

Los Angeles, California

SOUTH CHESTER STEEL PIPE

Excels for Gas Service

The unusual care given to accuracy of diameter and welding qualities, makes Chester Pipe a favorite for gas lines.

SOUTH CHESTER TUBE CO.

Chester, Pa.

The Cleaning *of* Natural Gas

(Continued from Page 28)

and this aided greatly in the development.

Our first model consisted of a rather intricate arrangement whereby the gas was bubbled in fine streams in a tangential direction and kept swirling in the same direction through a spiral outlet pipe one side of which was formed of transparent material so that the centrifugal action could be observed.

An arrangement was made whereby any desired form of finely divided material could be added to the incoming stream of air at a uniform rate and be intimately mixed with briefly, of a charging chamber in which the dust was placed, and included a spiral conveyor which could be turned at any desired rate to force the dust out of the container.

This was attached to one side of the inlet pipe. The outlet of this charging tube was slotted and a wire was so mounted on a rotating shaft, at right angles to the charging tube, that as the shaft rotated the wire was whipped through the slot at the end of the charging tube. This rotation was accomplished by means of a small electric motor.

Our first thought was to break the gas into small streams, bubble it through the oil, and then separate the oil and air by centrifugal action. It was soon found that no measurable gain was made by breaking the air into very small streams. The efficiency of our separation of oil particles from the outgoing stream of air was gauged by the volume of flow that could be maintained without losing oil in the outlet stream of air. The air was measured by an orifice meter. In our work on this model it was found that a screen composed of a number of layers of fly screen would produce a better separation of the air and oil than could be obtained by centrifugal action alone under the conditions imposed by the proportions and forms of our outer case. It was impossible to anticipate what would happen with a large volume passing through the oil from the action of the comparatively small volume possible in our small sized equipment.

LARGE SIZED SEPARATOR DESIGNED

From the experiments with this miniature equipment, a large sized separator was designed to be of capacity sufficient to handle the maximum gas flow into the town of Bartlesville, basing this capacity on the peak hour load of the winter of 1924 and 1925.

From the results of our preliminary work as described above, general over-all dimensions were decided upon for a full sized model separator, intended to handle a volume of air at practically atmospheric pressure equivalent to the volume of gas to be handled by a separator such as would be necessary for the city of Bartlesville. In determining this size, it was assumed that the limitation of the separator as to its capacity would be a function of the velocity of the gases going through the separator and that so far as dust separation and the ability to pass gas without losing oil was concerned, the static pressure of the gas going through could be neglected.

On these assumptions the shell or casing of the separator was made 29 inches in diameter and 8 feet long.

From our preliminary experiments with the miniature model, it was thought that more air could be handled by the separator in an inclined position than could be handled in a vertical position. Our first design was, therefore, made with the main shell of the separator mounted in an inclined position, the inclination being 22 degrees from the horizontal.

The shell of the separator was provided with twelve observation windows approximately 4 inches in diameter. These windows were made by cutting a hole in the side of the galvanized iron shell and fastening a piece of celluloid automobile curtain stock over the hole by means of a bolted ring and gasket so as to make an oil tight joint.

The gas inlet connection was 8 inches in diameter and it was located 30 inches from the bottom end of the shell.

Air for testing the separator was furnished by a 6-inch high pressure Buffalo cupolo fan, driven by a 5 h.p. electric motor. With this fan approximately 900 cubic feet of air per minute could be passed through the separator against a pressure of about 5 inches of water.

Dust was added to the incoming air by means of a galvanized iron hopper in which was mounted a spiral conveyor. The discharge of the hopper was arranged so that it would discharge dust into one of the side openings of the blower. By means of this hopper any desired kind of dust could be fed into the incoming stream of air at any desired rate, by simply regulating the speed at which the spiral conveyor was turned. This conveyor was turned by hand.

The top of the separator shell was fastened on by means of flange and gasket so as to be removable. This top was provided in its center with a 12-inch outlet nipple, coaxial with the shell.

Filter bags were provided approximately 4 feet long and of such a diameter that they could be tied around the outlet nipple of the separator so that all the air discharging from the separator had to pass through the filter bag.

The inlet connection was extended inside of the shell by means of a 90 degree ell, extending the air passage downwardly, and made to dip from ½ inch to 3 inches below the oil level.

A cylindrical screen was also provided for the outlet. This screen was made of ten layers of 16-mesh galvanized screen wire, and was completely blanked off at the lower end by a wooden disc. It was of such size that is could be inserted through the 12-inch opening in the top and was supported by a suitable bracket fastening to the sides of the separator shell.

WATER USED IN TEST

The separator was first tested out for its general action by putting water instead of oil into the shell to such a level as to submerge the inlet ell connection. Air was then bubbled through the water as a preliminary test of the effectiveness of the separating outlet screen. When using water the preparation seemed to be perfect as no hint of moisture or mist seemed to be contained in the outgoing stream of air.

The water was then removed and mineral seal oil substituted, mineral seal oil being the fluid which we intended to use in the final separator. It was found when using mineral seal oil that a very fine mist was visible in the out-going stream of air. After a few hours operation a few drops of oil dropped through from the top of the screen, part of each drop being blown away by the current of air and lost from the separator. In order to prevent this loss the screen was removed and a galvanized iron shield was

placed on the top side of the screen to blank off that portion. This shield effectively stopped any loss of oil in large drops, but the fine mist of oil was apparent in the outgoing air.

DETERMINING OIL LOSS

In order to determine the amount of our oil loss, a filter bag was placed over the outlet connection, having been previously weighed. After one hour and thirty minutes operation, it was found that .0281 pounds of oil was caught on the bag, this weight being determined by again weighing the bag.

This oil was for the most part apparent as minute droplets on the inside fleece lining of the filter bag. The bag was then replaced and the run continued for another hour and thirty minutes, and again weighed. This time the increment in weight was .081 pound. On a third run of one hour and thirty minutes, we secured an increment in weight of .155 pound. After another hour's operation, the increment in weight was .2855 pound. These tests showed a continually increasing rate of loss of oil, indicating that as the screen became more nearly saturated with oil a greater amount of oil was lost from the separator. Following these tests for loss of oil, a run was made in which dust was added to the inlet air. The filter bag was in position and was weighed before starting the test.

This run was continued for thirty minutes, during which time 44½ pounds of dust were injected into the entering air. The total increment of weight of the filter bag was found to be .18 pound, and if .09 pound per hour were allowed as increment of weight due to oil loss, the net weight of dust increment on the bag was .09 pound. Since 44½ pounds of dust were added to the incoming air, the amount caught on the bag was approximately .2 of 1 per cent of that added, or the efficiency was approximately 99.8 per cent dust separation.

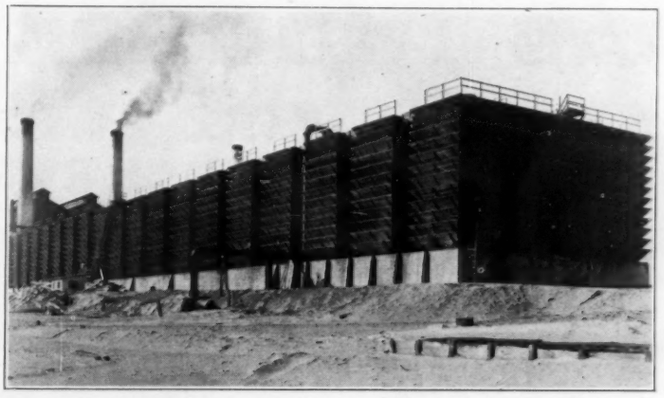
The connection between the blower and the inlet of the separator was made by means of a piece of truck inner tube. In order to ascertain the pressure delivered by the blower, a copper pitot tube was inserted in the side of the inlet tube with its opening pointing toward the stream of air.

STATIC CHARGES TROUBLESOME

It was noticed that whenever dust was added to the stream of air, a very heavy static charge accumulated on the pitot tube so that sparks would jump from the pitot tube over a gap of about one inch and the frequency of the spark would be roughly proportional to the amount of dust added.

It was also noted that the filter bag was heavily charged with static electriciy. The fibers of the bag stood out indicating the charged condition and a small particle of fuzz would jump from the hand to the bag for a distance of approximately one foot. It was thought that this phenomenon indicated that the dust carried a heavy electric charge and that this charged condition of the dust would interfere with its separation from the air stream.

It should be noted that the method of testing for efficiency by the use of the bag filter is not absolute but relative, as some oil vapor and a slight cloud of dust was visible by reflection in the sunlight leaving the bag with the discharged air. We had no means of measuring the amount of this loss and it would, of course, tend ot decrease the efficiency of separation over that obtained and also increase the oil loss. In a gas pipe line the iron pipe is a conductor and is well grounded so that it would be virtually impossible for the dust in the pipeline to be



Highest in Quality and Economy

In spite of the fact that Fluor Redwood Cooling Towers are made of the finest materials and embrace the best construction, bear in mind that our quantity production system keeps the price below that of all other high grade towers of equal capacities and performance. You may as well have the best when the best is lower in first cost as well as more economical eventually.

Ingenious mechanical design permits using the same integral parts for assembling a wide range of sizes, thereby offering a wide choice of heights and widths to meet unusual conditions. Let us submit the recommendations of our engineers covering your requirements.

FLUOR CONSTRUCTION CO.
Constructors and Engineers
Los Angeles, Calif.

FLUOR REDWOOD COOLING TOWERS

Electric Weld Products---

The Wood Automatic Storage Gas Water Heater

The Standard Combination Storage Gas Water Heater

Electric Weld Range Boilers and Storage Tanks

Made and Guaranteed by

John Wood Manufacturing Co.

2437 ENTERPRISE STREET LOS ANGELES, CALIF.

FOR THE
GAS INDUSTRY
"AMRECO" FIRE BRICK
"AMRECO" CHECKERS
"ARC" FIRE BRICK

AMERICAN
REFRACTORIES CO.
3132 ALOSTA ST. •• LOS ANGELES
ANgelus 7350

Governors—

—Automatic
—Balance
—High and Low Pressure
—District
—Reverse Flow
—Fuel Gas
—Service
—Special

Oxide Purifying Material Equipment

Back Pressure Valves
Boosters
Photometers
Unison Telemetric Gauge
Gas Timers
Gauges
Street Department Tools
Gas Tape
Miller Packing

Connelly Iron Sponge & Governor Co.
NEW YORK CHICAGO
C. B. Babcock Co.
135 Blessome St., San Francisco, Cal.

Sell Us Your Spare Time

TURN ODD HOURS INTO CASH, by telling your friends in the Company that you represent ***WESTERN GAS,*** and to let you send in their renewal and new subscriptions.

Our big commissions make it possible for you to earn two or three dollars during a spare hour.

We have openings for men or women who have spare time. To represent us in the following states; Colorado, Wyoming, Oklahoma, Texas, Louisiana, Arkansas, Kansas, Missouri, Iowa, Nebraska, Minnesota, North Dakota and South Dakota. Send us your name, address, age, also give us the name of one gas company official as reference. WESTERN BUSINESS PAPERS Inc., 626 South Spring Street, Los Angeles, California.

charged electrically to any considerable extent.

It was, therefore, decided to ground the inlet tube to the separator body and also to the blower by means of a spiral ribbon steel lining inserted in the inlet tube. After the insertion of the steel lining, a second test was run adding dust which, figured in the same way, showed an efficiency of approximately 99.6 per cent. While this is a little less than that shown by the previous run, the difference is not believed great and, it is thought, is due to experimental error.

Since it is a decrease of efficiency, it may possibly be that the static charge on the dust assisted somewhat in its deposition in the oil or on other parts of the separator, and the difference is not considered very significant. As the static phenomenon made the operation of the equipment very disagreeable, the steel ribbon lining, grounding the whole apparatus, was left in place for all future runs.

SEPARATOR RESET TO VERTICAL

Since the oil loss seemed to be rather large and since the inclined position of the separator was rather awkward from a structural standpoint, it was decided to reset the separator in a vertical position. The above tests are therefore all that were run on the separator while in the inclined position.

With the separator reset in a vertical posiion the tests were carried on with the idea of decreasing the oil loss. This was accomplished after various tests by inserting into the tank a partition above the inlet pipe.

For this partition we used an ordinary galvanized wash tub turned bottom up.

The tub was of a smaller diameter than the tank and was packed around the bottom so that all of the air must come through the tub. Openings were cut in the side in such a way that the air was in a whirl on entering the upper chamber.

Various outlet arrangements were tried for the purpose of preventing the loss of oil. Run down pipes were put in from the upper to the lower chamber extending down so as to be submerged in the oil.

The best arrangement found was a tube made of screen wire wrapper on perforated metal. Eighteen rounds of 16-mesh galvanized screen wire were used. We found that all of the air came through the screen, and that the tube of wire could be left open at the bottom. Also there was no swirl of air at the outlet of the tube, and that our oil loss was practically nothing.

FIRST SEPARATOR AT EL DORADO

All of our commercial separators are built on this method. Our first commercial separator was installed at El Dorado, Kansas, about September, 1925. On this separator an additional chamber was installed for testing purposes. In this chamber we had a filter bag through which all of the gas passed. By weighing the filter bag before putting it in service and again on taking it out, and knowing the amount of gas passed through, we were able to determine our efficiency, which was a little better than 99.6 per cent.

In the fall of 1925 we installed at our Tallant Compressor Station a 30-inch separator to be used for capacity tests, this plant handling approximately 30,000,000 cubic feet per day at this time. These tests proved that with this size separator we could handle approximately 9,000,000 cubic feet per day.

We then designed and installed a 60-inch separator for this plant, which would handle approximately 35,000,000 cubic feet per day. This is the largest size we expect to build.

When more capacity is needed we installed two or more separators.

At our town border, regulator and meter stations, where formerly we had a great deal of trouble due to cutting of valves, sticking and clogging of regulators, etc., our trouble has been eliminated. At some of our compressor stations our maintenance costs had been running very high, caused by the cutting and scoring of piston rods, compressor liners, piston rings, valves etc. An excessive amount of packing was used, due to scored rods, and a great amount of gas leakage caused a hazard as well as a loss. In addition to this loss, there was a greater one caused by having to shut down our compressor units for repairs when these units were needed to carry the peak load.

Our Tallant compressor station has been protected by a separator since January, 1926, and since that time no trouble has been encountered from dirty gas. The compressor rods, valves, etc., are still in excellent condition.

At the present time we have eight New Type Separator installations in service, all of which are working very satisfactorily.

GASOLINE EMPLOYEE JOURNAL BECOMES MONTHLY

"The Standard Gasoline Company Booster," official bi-monthly publication for Standard Gasoline employees, is henceforth to appear monthly, with a somewhat different make up. George L. Tyler, statistician for the company, will continue to edit the Booster.

NATURAL GASOLINE ASS'N WILL MEET AT TULSA, MAY 24-26

The Association of Natural Gasoline Manufacturers is making preparations for its sixth annual convention to be held at the Hotel Mayo in Tulsa Okla., May 24, 25 and 26. The third day of the convention will be known as "motor fuel day," and all phases of the subject will be gone into thoroughly.

Dr. G. G. Brown, professor of chemical engineering of the University of Michigan and director of research for the association, will present some new thoughts on the value of natural gasoline and motor fuel together with a resume of developments since July 1 last, when the association inaugurated its research program.

NEW ORDINANCE FOR LYONS

Lyons, Kan., has passed a new gas ordinance under which anyone may make gas connections and fittings, without bond, providing both city inspector and gas company pass on the work before the service is connected.

W. H. MOTT GOES TO BUFFALO

Willis H. Mott, assistant to F. D. Frank, superintendent of the meter department of the natural gas division of the Empire Companies, has been transferred to Buffalo, N. Y., where he will be associated with the Dominion Gas Company, also a Cities Service company.

ASKS EMPORIA FRANCHISE

E. D. Wilson, owner of the Twin Cities Gas Company, supplying Strong City and Cottonwood Falls, Kan., with natural gas, is applying for a franchise to serve natural gas to Emporia, Kan. A franchise proposed by the Emporia Gas Company was rejected at a municipal election of April 5.

NEW LINES IN CLAREMORE, OKLA.

The Oklahoma Natural Gas Company is renewing its service lines in Claremore, Okla.

KEY *Special* PIPE JOINT COMPOUND

Water-Proof

KEY SPECIAL PIPE JOINT COMPOUND will effectively seal screw thread and gasket joints for such service as Gas, Water, Steam, Compressed Air, etc.

One of the many advantages this compound has over the commonly used red leads and oils, etc., is that the pigment will not settle to the bottom of the container, thereby holding the contents in equal suspension at all times ready for service.

KEY SPECIAL PIPE COMPOUND is not a quick hardening cement but a plastic lubricant and filler that will seal the most obstinate joint with ease.

You may test the high quality of this product by taking a small quantity between the fingers which will immediately demonstrate the wonderful lubricating qualities along with the "pull or drag" that makes possible a permanent seal without resorting to cementing materials, most of which are very undesirable and impracticable to use.

Write for **FREE** Sample

E. A. Key Co., Inc.
1431 Santa Fe Ave.
Los Angeles, Calif.
Portland Seattle
San Francisco
Denver El Paso

FIRE BRICK

THIS organization is the largest and oldest maker of Fire Brick west of St. Louis and offers a complete Fire Brick service to the Gas Industry. Standard sizes for—

LININGS—CHECKERS
BOILER SETTINGS

are always carried in stock. Deliveries can be made quickly. If you require special sizes of Fire Brick, our plant is especially equipped to make them. Write or phone us for complete information.

LOS ANGELES
PRESSED BRICK CO
GLADDING, McBEAN & CO
621 So Hope St Trinity 5761
LOS ANGELES

282

You Can Bury Your Pipe and Forget Re-Conditioning for Years, When Protected With—

ECLIPSE
SAVE-A-LINE

You can save thousands and thousands of dollars in repairs and replacements by protecting your pipe lines with this tough, elastic, non-cracking, non-peeling, heavy filmed coating.

ECLIPSE "Save-A-Line" has for years stood the only test that tells a true story—actual use in the fields. We can cite you instances where "Save-A-Line" has been used on pipe **laid in swamps** and on being examined years later was found to be **untouched with corrosion!**

The following well known companies subject all pipe line coatings under consideration, to a severe, but fair test. As a result they selected ECLIPSE "Save-A-Line" and are now using it regularly. The total of their orders last year ran into hundreds of caraloads.

ECLIPSE "Save-a-Line" is applied direct from package—no heating, sizing, wrapping of paper or burlap required.

Gulf Pipe Line Co.
Lone Star Gas Co.
Humble Pipe Line Co.
California Petroleum Co.
The Shell Co. of California.
Wilmington Gas Co.
Coast Counties Gas & Elec. Co.
Public Service Gas & Elec. Co.
New York State Gas & Elec. Co.

The Eclipse Paint & Mfg Co.
Cleveland, Ohio, U.S.A.

Dallas Denver Newark
Philadelphia Charlotte, N. C.
San Francisco

DAVIDSON NOW SUPERINTENDENT OF APPLIANCE SALES

H. E. Davidson, formerly sales supervisor for the Southern California Gas Company's northern division, has been appointed superintendent of appliance sales, with headquarters in the company's Los Angeles offices.

CAL-EASTERN GASOLINE PLANT

Construction of a natural gasoline plant of 12,000 gallons per day capacity in the Alamitos Heights field in the Los Angeles basin is planned by the California-Eastern Oil Company.

SO. CAL. GAS SERVES FONTANA

Fontana, Calif., is the latest addition to the communities to be served by the Southern California Gas Company, raising the utility's total to 73 municipalities served. Twelve miles of main and distributing lines were included in the extension.

HOPE ENGINEERING CO. STARTS RIO GRANDE VALLEY LINE

The Hope Engineering Co. is starting work on the construction of a gas line for the Valley Gas Company, from the Webb County gas districts to Brownsville, Texas. The company will serve fifteen towns in the Rio Grande Valley with natural gas. The west end of the line will traverse a barren region, with all of the towns to be served with gas located in what is called the Valley section. It is planned to start delivering gas by October 1st of this year.

ROXANA PETROLEUM BRINGS PLANT TO FLUHMAN FIELD

The Roxana Petroleum Corporation has started operating a three unit combination natural gasoline plant in the Fluhman field of North Central Texas. The field is 16 miles from Vernon. The plant is a portable and was moved to the Texas site from the Braman field in Oklahoma.

A. G. A. SAFETY CODE MADE OFFICIAL STANDARD

The Gas Safety Code for installations and work in buildings, prepared by the American Gas Association and the U. S. Bureau of Standards, approved December 28, 1925, by the American Engineering Standards Committee as Tentative American Gas Safety Code, has been approved as Permanent American Gas Safety Code by the American Engineering Standards Committee as of March 10, 1927.

Copies of the Code may be obtained from Association Headquarters at a price of twenty cents each.

UNITED GAS & ELECTRIC GETS INTEREST IN HOUSTON GULF

The United Gas & Electric Company, which is controlled by the Empire Power Corporation, has acquired an interest of between 25 and 30 per cent in the Houston Gulf Gas Company, according to a recent announcement by F. J. Stiltz, president of United Gas. The Houston Gulf Gas Co., controls the Robstown Gas Co., Robstown Pipe Line Co., Sinton Gas Co., Sinton Pipe Line Co., and Refugio Oil & Gas Co. in south Texas. It owns about 100,000 acres of gas lands in Texas and gas contracted to supply the requirements of the Houston Gas & Fuel Company, serving the city of Houston, Texas. It is also a large marketer of natural gas for industrial fueling purposes to the industries along the Houston Ship Channel.

KLEENBURN COMPANY APPOINTS C. B. BABCOCK

C. B. Babcock, president of the C. B. Babcock Company which acts as Pacific Coast representative for a number of well known gas appliances, has made arrangements with J. C. Millmann, general manager of the Kleenburn Company of Milwaukee, Wis., to merchandise the Kleenburn Cinerator in the Coast territory.

The modern, gas-fired incinerator, installed in the home, has much in its favor from a domestic viewpoint and also from the gas company angle. It removes an eyesore from the home premises, and makes for convenience and cleanliness—and it has a good load factor. It is one more step in aiding the gas company to sell a complete home service. Sale of the domestic incinerator is going to receive increasing attention from Western gas companies.

DOUBLES GASOLINE YIELD

Rice Ranch Oil Co. is now getting 2200 gallons yield daily from its absorption plant, recently substituted for the compression and refrigeration plant operated at Santa Maria, Calif. This yield is double that of the compression plant.

WET GAS IN MONTANA

A strike of wet gas by the Red Top Oil and Gas Company near the Sweet Grass Hills, Montana, is regarded as unusually significant, as it is the first wet gas to be found south of the Canadian border in this region.

ENLARGE MAINS IN OKLAHOMA

A program of enlarging city distribution mains is under way by the Oklahoma Northern Utilities Company in Garber, Tonkawa and Blackwell.

PEOPLES LIGHT & POWER CORP. BUYS LAWRENCE UTILITY

Peoples Light & Power Corp., owned by the W. B. Foshay Co. of Minneapolis, has purchased the Citizens Light, Heat and Power Co., which distributes gas in Lawrence, Kan. Peoples Utilities Kansas Corp. will be the Lawrence company's new name.

GREAT FALLS MAINS TO BE EXTENDED, SAYS A. H. SIKES

A. H. Sikes, manager of the Great Falls, Mont., Gas Co., announces that seven miles of new mains will be laid in that community as a part of the year's program of expansion for the William A. Baer organization, of which the Great Falls company is a unit. Gas lines will also be extended to Black Eagle.

25TH ANNIVERSARY

The American Stove Company, St. Louis, Mo., is celebrating its twenty-fifth year of existence. It commenced business on January 7, 1902.

MUELLER INTERESTS SEPARATE

The Mueller interests have recently separated into three distinct operating enterprises, the Mueller Co., of Decatur, Ill., Mueller, Ltd., of Sarnia, Ont., and the Mueller Brass Co., of Port Huron, Mich.

DETROIT MOTOR MFGRS. NOW USE GAS TO WEAR-IN NEW CARS

Motor manufacturers in Detroit are abandoning the use of gasoline as fuel to use in wearing-in new motors. This announcement was made by the Illinois Committee on Public Utility Information. In the place of gasoline, gas from the city mains is used.

Selling *to* Build Load

(Continued from Page 25)

ing the best thought of the industry on this subject that we may hope to solve this problem, admitted it is a problem.

SIX CENTS OF THE FAMILY DOLLAR

You have seen the recently published tabulation of the General Electric Company on where six cents of the family dollar goes:

2. c to the railroad
1.26c for telephone.
1.8 c for gas
.21c for water
.42c for street cars
1.3 c for electricity

This would indicate that additional expenditure for gas would work no hardship upon your individual consumers.

We have established a laboratory to bring about safe and healthful gas appliances. Even now this work is being felt. This starts us off, then, with the right kind of appliances to work with. Are we making use of this valuable adjunct to our business and cashing in on our investment in this service? If not, why not?

Let us sell the idea of the Blue Star home and not necessarily individual appliances. Let us as a sales organization of the utility, do as the plumber does with the new home builder; he sells a complete installation, bath, lavatories, laundry equipment, sinks, etc. Let us sell all of our domestic appliances, cooking ranges, space heaters, laundry equipment, incineration, artificial ice equipment and central heating plants. In other words, let us sell a complete service.

The question of reduced cooking load is a difficult one to solve, but I believe it can and will be solved. The cause, I think, is obvious. If there ever was a time when women want leisure and freedom from household work, that time is the present. Women simply do not want to spend time in the kitchen; ample evidence can be found in the unprecedented business being done by the canned goods people, the increased use of canned goods and bakery products as compared with home cooked foods.

Conceding that the domestic cooking business is on the decrease, and assuming further decrease will mean loss of profits to the utility, how can we stop it and start the pendulum swinging the other way?

Any solution will fail which does not recognize the fact that modern women want leisure and convenience.

It is likewise true that both men and women still have an underlying appreciation of the purity, wholesomeness, flavor and general desirability of home prepared foods. Our problem, then, is to take fullest advantage of this desire for home cooked foods, and to overcome the resistance caused by the modern woman's "convenience habit."

We must bring home to the housewife the importance of serving home-made foods, and show her how she can do this without sacrificing the leisure which she considers her right.

Rate revisions or general gas publicity cannot do this. Neither can we rely on ordinary salesmanship, since the salesman is busy selling merchandise and cannot be expected to do a real job of getting women to cook their own foods.

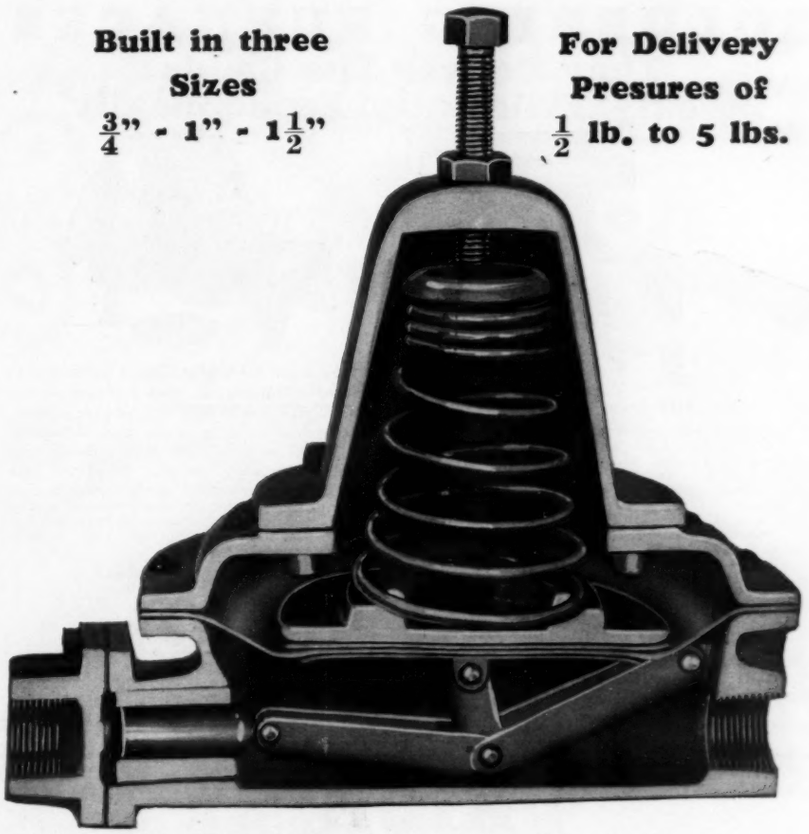
WANTED: A DOMESTIC SALES PLAN

The only real solution seems to be a complete plan of educational publicity; a plan that will bring women to realize the great fallacy in trying to manage a home on the delicatessen basis successfully; a plan that will convincingly prove to the housewife

The Reliance High Pressure Regulator

Built in three Sizes
$\frac{3}{4}$" - 1" - 1$\frac{1}{2}$"

For Delivery Presures of
$\frac{1}{2}$ lb. to 5 lbs.



Particularly suitable for Industrial Plants where positive lockup, close regulation and large capacities are desired. Prices upon application

Reliance Manufacturing Co.

PASADENA, CALIFORNIA

Eastern Representative	Northwestern Representative	Mid-Continent Representative
Isbell Porter Co.	Northwest Gas & Electric Equipment Co.	Westcott & Greis
Newark, N. J.	Portland, Oregon	Tulsa, Okla., Dallas, Texas

W P & S

DESIGNERS, FABRICATORS & ERECTORS OF PRODUCTS OF **STEEL**

Investigate WESTERN Hi-Pressure Unit Gas Holders

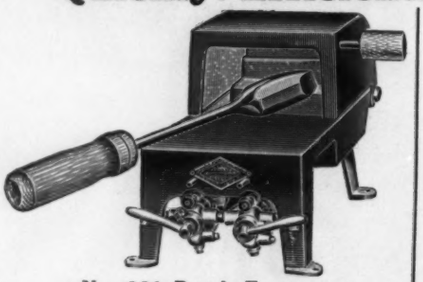
WESTERN PIPE & STEEL COMPANY OF CALIFORNIA
5717 Santa Fe Ave. LOS ANGELES — 444 Market Street SAN FRANCISCO
FACTORIES
LOS ANGELES · SOUTH SAN FRANCISCO · FRESNO · PHOENIX · TAFT

W P & S

JOHNSON

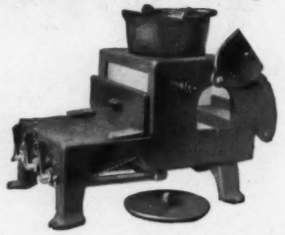
SOLDERING FURNACES

They Deliver The Goods
Quickly! Efficiently! Economically!



No. 101 Bench Furnace

A powerful, efficient, and economical Bench Furnace designed for heating soldering coppers up to 12 lbs. per pair; for heat treating, tempering, annealing, or case-hardening any carbon steel tools or small metal parts. A Blower being unnecessary, the use of a muffle is eliminated. Equipped with powerful Johnson Bunsen Burners. Many additional features. Write for full details.



No. 118 Combination Furnace

An ideal Combination Bench Furnace for any shop use. Will heat the largest soldering coppers, branding irons and stenciling irons; it will temper, heat-treat, anneal, case harden, melt soft metal. Built to retain heat and maintain even temperature. The lid on hood may be removed and a 25-lb. capacity melting pot may be inserted for melting small quantities of soft metal. Write for full details.

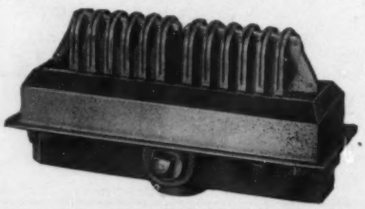
The Hottest Bench Furnaces On the Market Without Blowers!

JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA

Pacific Coast Representative—C. B. Babcock Co.
135 Bluxome Streeet San Francisco, California

"HIGH"

efficiency and flame temperatures even though operating under wide fluctuations in gas heat values and pressures

R. M. C.  Gas Burner

ROTARY MANUFACTURING CO.
5720 LONG BEACH AVENUE LOS ANGELES, CALIFORNIA

The Beacon Automatic Storage Water Heater

TEN SIZES FROM 12 GALS. TO 120 GALS.
FOUR MODELS FROM $57.50 UP

The Beacon is staunchly constructed and heavily insulated.. Seams are both riveted and welded.
Brass pipe is used in delivering hot water from the heating element (which is also brass) to the boiler. Brass keeps water clean.
Let us send you full particulars.

Beacon Water Heater Co.

Geo. F. Pearse
776 So. San Pedro St. Los Angeles, California

that she can have an afternoon off every day—that she can serve home-made breads and pastries as easily as she can buy them at the store; a plan that will show the housewife that summer heat need not force her to lock up her kitchen for the sake of keeping cool; that all these things are possible because of the great improvements in certain appliances.

Such a plan calls for carefully constructed advertising, both national and local, and this should be supplemented by the liberal use of literature telling the same story, and last but not least, demonstrations by capable, well paid women. Appropriations should be made and home service departments set up if we hope to do this job.

NO CAUSE FOR PESSIMISM

The domestic cooking business is not shot to pieces by a long way, as is evidenced from the survey referred to previously and others that you all know of. The great modern improvements in the leading appliances can turn the tide, providing they are sold in a big way. This may be a difficult job, but not nearly as tough a job as the talking machine people ran into with the advent of the radio. They improved their product and told their story in a smashing way, and have staged a surprising battle against almost insurmountable odds.

An educational campaign as suggested is the logical foundation on which improved selling methods can function, and I believe it is the only means by which we can get women into the frame of mind that will lead to a comeback in the domestic cooking business. What are we going to do about it?

The food and soap manufacturers carried 25 per cent less advertising three years ago than they do today. Their appropriations to increase the sale of their products, which require the use of cooking or hot water, are 25 per cent more than they were three years ago. They have found it necessary to make this additional investment in advertising to keep their sales volume where it should be to show a profit. What have we in the gas industry, by way of comparison, done to get our share of the business these manufacturers create?

Another point I want to bring to your attention is this: I wonder how many are taking the fullest advantage of the study of domestic science in the various schools of the country, both public and private. It seems to me that the gas companies should do everything in their power to make every possible use of the school facilities, because if a child is brought up right in connection with the importance of home cooking, a very important step will have been taken in the right direction. What are we doing to take advantage and capitalize on this very important work?

BETTER PRODUCTS

Too many of our selling organizations are selling a product on a price basis instead of on a service basis. Our sales floors in many places are not a credit to our industry and do not show the best and most improved appilances. How many sales floors are graced with a full enamel, oven control, warming closet, a canopy range, selling upwards of $200 to $250? How can we expect to hold our business if we permit competitors to sell better products?

I am holding no brief for any manufacturer or any line, but I notice that some gas companies are selling a limited service in the sale of some appliances. I refer to hot water and central heating appliances now. If we have a good fuel, why should we jeopardize our business by selling a limited

service such as is supplied by some appliances of both classes, or by conversion jobs in central heating plants? It seems to me we should get entirely away from the price bugaboo and sell quality and service, if we wish to maintain and increase our domestic load. Why should we sell two baths a day if a consumer wants and needs more? Why should we sell a conversion central heating plant job if it will not serve as satisfactorily or economically as a gas fired central heating plant?

THE HOUSE HEATING LOAD

At the present time we have a comparatively new class in the gas appliance business and in the industry. House heating by gas is destined to play a very large and important part in the life of every company. Despite skepticisms, fears of peak load, lack of plant capacity or distribution systems, the central heating gas fired plant is here, and no escape from the inevitable is possible.

Why, then, does not the whole industry get behind this new baby and feed it so it will grow rapidly and normally into a healthy child? Why do we clothe this business with an air of mystery? Why do we approach this business with awe? There is nothing strange about it, and particularly is this proven when the mail order houses have for years shown us the way by selling as high as 50 to 75 jobs per day by mail.

Why should we necessarily approach our prospect with a proposition with a guarantee to remove after a season's use, with a charge for use or rebating a large part of the agreed purchase price? Or why should we necessarily guarantee a certain maximum bill for fuel for a season's use, and if we do, why should this figure be placed at a maximum which we should know would never be reached? This kind of selling cannot build the business of load or increase it at a very rapid rate. Our competitors do not guarantee fuel bills; they sell a central heating plant on its merits, and only guarantee it to do the job from a heating standpoint. The industry is inclined, I believe, to make the selling of central heating plants so technical that the average consumer backs away because he is afraid. It is not done in competitive fields.

Again, let us sell convenience and heating service, and not gas bills, which seems now to be our principal effort.

How many of us in selling our product, gas, can definitely answer questions on comparative costs of operation as against competitive fuels?

To illustrate my point I am asking how many in the room can tell me how much gas of 550 B.T.U. content it will require to produce a unit of manufacture, say in an enamel plant. By this I mean how many feet of gas will be required to produce a square foot of sheet porcelain enamel, or a pound of cast iron enamel? I mention this because I believe we do not have sufficient data covering actual operations to give out to enable us to sell our product and guarantee results.

ELEVATE THE SALES DEPARTMENT

Many, many sales departments in utility organizations are not what they should be to do the job we have ahead of us to do. It will be necessary, I believe, to look upon these departments with a different attitude and bring into them men of vision, initiative and sales ability, and to compensate on a basis competitively.

There are some sales executives that think selling must be done in season and that efforts out of season are useless. Of course most of us appreciate this is a mistaken idea, but for the benefit of those who think other-

Stockton
Fire Brick Company

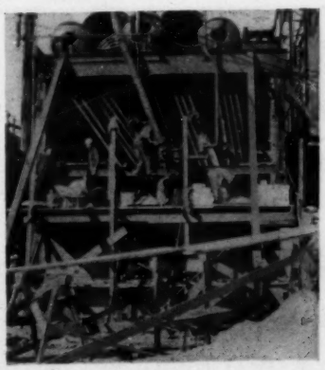
FIRE BRICK, INSULATING BRICK
HIGH TEMPERATURE CEMENT

High Grade Refractories
for

GENERATOR LININGS
CHECKERS
BOILER SETTINGS

OFFICE:
Rialto Building
San Francisco

WORKS:
Stockton
California



Brick work in progress—boiler installation L. A. Gas and Electric Co.

Any Place In The West
Established 1906
J. T. Thorpe & Son
Inc.
Fire Brick Contractors
Specializing in
Gas generator, boiler, still and furnace brick, industrial furnaces, retorts, kilns, brick smokestacks.

Portland
632 Ry. Exch. Bldg.
San Francisco
417 Market St.
Los Angeles
321 W. 3d St.
Seattle
939 Stewart Bldg.

REYNOLDS

Gas Regulator Company

Manufacturers
of

Gas Regulators and Governors

Holder Governors
Single District Station Regulators
Double District Station Regulators
High Pressure Service Regulators
Low Pressure Service Regulators
High Pressure Line Regulators
Intermediate Pressure Governors
Relief & Back Pressure Valves
Anti-Vacuum Quick Closing Valves
Separate Mercury Seals

Main Office and Factory *Anderson, Indiana*

Established 1892

Chas. C. Moore & Co. Engineers, Inc.

CONTRACTORS FOR COMPLETE PLANTS

High Grade Machinery

The Babcock & Wilcox water tube boilers
Corliss high speed and poppet valve engines
Babcock & Wilcox superheaters
Hamilton compressors
Green fuel economizers
Wheeler Condenser & Engineering Co. condensing machinery
Cochrane feed water heaters (open and closed)
Cochrane feed water metering heaters
Cochrane feed water softeners (hot and cold processes)
Cochrane steam and oil separators
Cochrane flow meters
Moore automatic fuel oil regulators
Diamond soot blowers
Lagonda tube cleaners
Copes feed water regulators
Lagonda automatic boiler stop valves
Leslie reducing valves

And All Power Plant Auxiliaries

Address our nearest office for catalogs and complete information

Home Office: San FRANCISCO, Sheldon Bldg.

New York City, Hudson Terminal Bldg.
Los Angeles, Central Bldg. Portland, Gasco Bldg. Seattle, L. C. Smith Bldg.
Salt Lake City, Kearns Bldg. Honolulu, T. H. Phoenix, Heard Bldg.
Vancouver, B. C., Standard Bank Bldg.

ALUNDUM—CRYSTOLON

Heavy Duty Refractories

For All High Temperature Uses

Complete Stock of 9-inch Standard Bricks, Tile and Cements Carried

Phone TUcker 3452

Abrasive Engineering Corporation

Refractory Division
NORTON COMPANY HEAVY DUTY REFRACTORIES
617 E. Third Street Los Angeles, Calif.

wise I will quote Federal Reserve Board figures covering five departments from a department store having a $200,000,000 purchasing power, showing the percentages of sales during July and August, which are considered off-season in our business. These departments were:

Furniture, which sold 20.98 per cent of the entire year's turnover in these two months.
Draperies, which sold 11.36 per cent.
Floor Coverings, which sold 13.47 per cent.
Chinaware, which sold 11.62 per cent.
House Furnishings, which sold 12.88 per cent.

This I mention to try to show the desirability of sales and consumption twelve months in the year, rather than seasonal. And when it is all said and done, we can materially improve our selling volume if we will work with the firm conviction that we have a product and a service which is worth more by far than we ask for it.

Peak Load Investment

(Continued from Page 24)

per cent in excess of the January average plus 20 per cent. Figure No. 1 graphically indicates the trend of the peak loads and their percentage excess over normal demands. Tables No. 1 and 2 also show the continuing increase in the B. t. u. consumption of gas per meter on peak days. It is to be noted that the mean temperature on December 23, 1926, was only 48 degrees, as compared with previous days of 42 degrees. If other conditions had remained the same, and the weather this past winter had been as cold as previously, our peak would have been much greater.

Figure No. 2 shows graphically the application of the above analysis of the percentage of excess of peak demands as it applies to the investment required to render service. It is because of our cheap gas rates in Los Angeles that gas has become the universal fuel. This cheap rate, in turn, is possible only because of the natural gas supply. At times of peak load, roughly half of our sendout is supplied with natural gas, and the balance is manufactured from oil. This has minimized the investment in production plant equipment. However, all such plant has been required to meet the demands, and must therefore affect peak load investment. Because of the fact that plant investment has increased much faster than the gain in new consumers, the investment per consumer has nearly doubled during the past seven years. It is hardly proper to assume the individual figures for any single year as fairly representative of peak load investment, for load depends upon weather, and the most severe conditions must be met. Based on the above assumptions and the load conditions for the winter of 1926-27, the excess investment for supplying the peak demand amounted to over $20,000,000. If, however, this investment be computed upon the seven year average of excess of the peak, then the surplus investment would amount to over $11,000,000. Interest charges on this latter sum, at 8 per cent, amount to $890,000 per year. This interest cost is approximately 6½ per cent of the total annual cost of service, or the amount that must be paid by consumers. In other words, if Los Angeles had a more uniform load factor, the cost of gas service could be appreciably reduced.

FLETCHER SERVICE BEGUN

S. M. Williams, Jr., president of the Midwest Gas Company, announces that the company's distribution system in Fletcher, Okla., has been completed and service begun.

Use Industrial Data Sheets

(Continued from Page 29)

ments noted. The usual methods are then followed in selling the prospect, the sales engineer using to advantage all of the available data pertaining to the job.

Second: After the prospect is sold and the necessary contracts signed, a meter regulator report is started by the new business department and sent to the distribution department. The distribution department completes the report, returns one copy to the new business department and files the other.

Third: When the service is laid and the equipment installed, the job is turned over to the industrial service department. Special equipment is installed under the supervision of the industrial service department and the new business department.

KEEPING THE JOB SOLD

We are quite proud of our industrial service department. Its members render valuable service to our consumers and to the company through keeping in constant touch with the industries. They are the boys that keep the job sold. This department makes systematic calls upon all industrial consumers, conducting necessary tests to determine the performance of new equipment on gas as well as tests upon old equipment; the results are used to obtain higher efficiencies if possible. The results of these calls are noted on Service reports which are filled out in triplicate if in an outside division. A copy is sent to the division manager, industrial service department and new business department. If the industrial is in the central division these reports are made in duplicate.

In addition to these inter-departmental data sheets, the industrial service department keeps in its own files information recorded on the Meter-Regulator Report illustrated with this article. This report is also available to other departments.

In making the routine calls, route books are used. Each sheet of these loose leaf books is a data sheet for one consumer. The consumer's name, address, telephone number, and the name of the one in charge appears at the top of the page. Upon each call, the data, meter reading and some brief notation are recorded This forms an accumulative record in the office.

When more extensive tests are performed a flue gas analysis report may be used. This is filed and a summary made in the form of a Service Report and sent in, bringing information as to the efficiency of combustion for different loads, also the most efficient draft and gas pressures for that particular type of installation.

Still more detailed tests require that special forms be made, usually a complete form for the original data and a summarized form for the report. The information is sent to the New Business Department in the form of a letter or a full report.

A form is filled out for each new installation showing the kind and size of all equipment pertaining to the use of the gas. The kind of gas with pressures and sizes of lines is also given in this form.

The industrial data sheets of the American Gas Association, or the equivalent, can be filled in, from the data available in our records, and they form a detailed story in the files, to which access may be had at any time.

PACIFIC SAFETY CONFERENCE

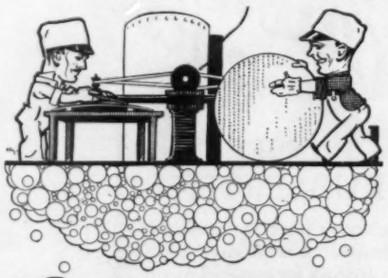
The fourth annual Pacific Safety Conference will be held at Los Angeles, October 24-28, under the auspices of the National Safety Council.

Protect your pipe the Pioneer way
PIONEER RUBBERTEX
is science's latest contribution to industrial economy. Used as a coating for exposed metal surfaces, or in conjunction with Pioneer Pipe Covering on buried pipe lines, it will add years of service and working life.
It will:
...resist alkaline erosion
...stop oxidation
...overcome electrolysis
...and all of this means money in your pocket!
Try a test for yourself. Flow some Pioneer Rubbertex on a piece of metal. Freeze it... then bend the metal. It will not chip, scale or crack.
A fifty pound trial order will convince you.
PIONEER PRODUCTS
Pioneer RUBBERTEX
Manufactured by the
PIONEER PAPER COMPANY, Inc.
Established 1888
DENVER SPOKANE
LOS ANGELES SAN FRANCISCO
PORTLAND SEATTLE

C. B. Babcock Company

"We Serve"

135 Bluxome Street, San Francisco, California



WE'VE put billions and billions of bubbles to work—and they are paying good dividends—dividends to the gasoline plant in the form of greatly increased production—and dividends to us in the form of constantly increasing orders.

Campbell Business is built on BUBBLES!

The utilization of oil-froth to extract natural gasoline from wet gas has been one of the outstanding achievements in the gas industry—and it is a contribution generally accredited to Campbell Engineers.

J. A. Campbell

Consulting—Designing—Constructing

P. O. Box 669 Natural Gas Engineer Long Beach, Calif.

CAMPBELL OIL FROTH absorber

The STRICKLER Ratchet Pipe Cutter

The STRICKLER Ratchet Pipe Cutter automatically cuts cast iron, steel and wrought iron pipe (from 1½ to 30" in diameter) by hand (either in the trench or in the shop).

You can cut any pipe from any position easily. Simply pump the handle and the STRICKLER does the rest. Order your STRICKLER Now

W. W. STRICKLER & BROS.

1475 Oak Street Columbus, Ohio

SOUTH COAST GAS CO. APPLIES TO OPERATE IN OCEANSIDE

The South Coast Gas Company has applied with the California Railroad Commission for a certificate to operate a gas utility in the city of Oceanside, San Diego County. The enterprise is headed by Curtis Flint and the engineer in charge is Mr. Murphy. Permission has been asked to issue 1,000 shares of capital stock and 850 of preferred stock, at $100 a share, to finance construction.

AUGUSTA GIVES UP CITY GAS DISTRIBUTION DEPARTMENT

By a vote of citizens of Augusta, Kan., on March 25, the Western Distributing Company and Gas Service Company, Cities Service Company subsidaries, acquired a 20-year franchise to serve Augusta, Kan., and purchased the city's municipal gas system. J. G. Mawson will be local manager at Augusta. The distribution system in Augusta is now being rehabilitated.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

Required by the Act of Congress of August 24, 1912, of *Western Gas*, published monthly at Los Angeles, California, for April 1, 1927.

State of California, County of Los Angeles, ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Jay E. Jenkins, who, having been duly sworn according to law, deposes and says that he is the business manager of *Western Gas* (magazine), and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Western Business Papers, Inc., 626 So. Spring St., Los Angeles, California.

Editor, James E. Jenkins, 626 So. Spring St., Los Angeles, California.

Managing Editor, Geo. H. Finley, 626 So. Spring St., Los Angeles, California.

Business Manager, Jay E. Jenkins, 626 So. Spring St., Los Angeles, California.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Western Business Papers, Inc., Los Angeles, Calif.

Jay E. Jenkins, 626 S. Spring St., Los Angeles, Calif.

James E. Jenkins, 626 S. Spring St., Los Angeles, Calif.

Geo. H. Finley, 626 S. Spring St., Los Angeles, Calif.

H. Elliott Taylor, 447 Sutter St., San Francisco, Calif.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is..... (This information is required from daily publications only.)

JAY E. JENKINS, Business Manager.

Sworn to and subscribed before me this 24th day of March, 1927.

(Seal) G. ROY PENDELL,
Notary Public, in and for the County of Los Angeles, State of California.
My Commission Expires May 23, 1928.

Classified Advertising

Classified advertising five cents per word; minimum $2.00 per insertion. Situation Wanted advertisements up to 50 words will be published three consecutive issues without charge.

Situations Wanted

Note: Western Gas will publish free of charge, under this heading, advertisements of situations wanted. Maximum length, 50 words; additional space at classified rates five cents per word per insertion. Copy should be neatly typewritten on one side of paper only, and should be mailed to reach *Western Gas* not later than the 20th day of the month prior to publication date.

Natural Gas Man—Can install and operate gas plant, repair and test meters and gas wells. Has own bookkeeper; also assistant gas man who knows the business. Best of references. What have you to offer? Address Box A-6, care of *Western Gas.*

Gas man of 20 years experience with coal, water and oil gas, in both East and West. Has been superintendent of both operation and distribution for a number of years. Best of references. Address Box A-7, care of *Western Gas.*

HELP WANTED

Gas company requires practical man for plant superintendent. Address Box A-8, care of *Western Gas.*

Cost Accounting Helps *the* Natural Gasoline Producer

(Continued from Page 33)

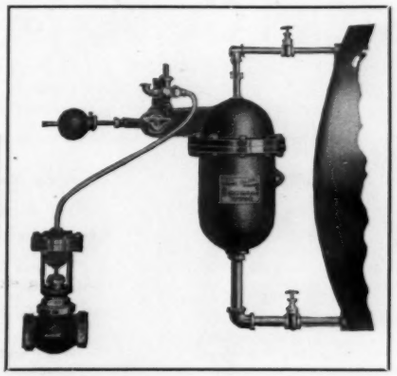
drawn off, and profit for the month determined and furnished the management by the 21st or 22nd of each month.

In order to accomplish this, it is essential that all departments work in close harmony with the accounting department, furnishing necessary information and reports promptly, giving sufficient information to enable proper handling; and that each member of the accounting force perform his or her individual duties with reasonable speed and accuracy.

There are so many problems continually confronting the casinghead producer which are peculiar to his industry alone, that the accounting should be kept entirely separate from all other branches of the oil industry. In this way only can the management have complete control over all departments of the business, obtain the profit and loss and cost statements before they have lost their value as current reports, and apply corrective measures to that particular phase of the business which these statements indicate are out of line.

TUCSON NATURAL GAS

Gas may be developed in commercial quantities in the Tucson Mountains near Tucson, Ariz., say local geologists. Their opinion is based on showings of natural gas encountered in drilling a water well in this vicinity.



Dependable—of course

The Vigilant Liquid Level Regulator, by remote control, is designed to maintain a constant oil level in both the absorbing tank and the still, where gasoline is manufactured by absorbing the gasoline in oil and subsequently separating it from the oil by distillation.

This regulator will accommodate itself to any type of absorber or steam still, and maintain a constant oil level under all conditions of temperature and pressure.

Thirty-five years of successful experience in the manufacture of regulators assure to the purchaser absolutely accurate and reliable equipment.

Write for Catalogue

The Chaplin-Fulton Mfg. Co.

Organized 1884—Oldest Builders of Gas Regulators in the Country. Built in all Sizes, From 1 Inch to 24 Inches; For All Service. 1 oz. up to 1,600 lbs. Pressure to Square Inch.

28-36 Penn Avenue REPRESENTATIVES: **Pittsburgh, Pa.**

WESTCOTT & GREIS, Inc. Sales and Service Dallas—Los Angeles—Tulsa

JNO. W. CRAWFORD Sales Engineer 1855 Industrial St. Los Angeles

WESTERN GAS
626 South Spring Street,
Los Angeles, California .....192.....

Starting with the next monthly issue, you may send WESTERN GAS to the undersigned. Upon receipt of invoice, remittance will be sent to cover (1 year $2.00) or (3 years $5.00).

Name ..... *Title* .....

Company .....

Address .....

City and State .....

Please Check

[ ] GAS COMPANY [ ] GAS APPLIANCES
[ ] NATURAL GASOLINE CO. [ ] MISCELLANEOUS

Subscription: 1 Year, $2.00; 3 Years, $5.00, in Advance

A WESTERN GUIDE to INDUSTRIAL PURCHASING

Readers interested in any articles not listed in these pages are cordially invited to advise *Western Gas* of their wants and every effort will be made to furnish a list of the proper manufacturers. Addresses of companies listed on these pages may be found by consulting their advertisements in this issue.

Absorption and Compression Plant Equipment
Baker Iron Works.
C. F. Braun & Co.
Chaplin-Fulton Mfg. Co.
Fluor Construction Co.
J. A. Campbell.
Jensen Instrument Co.
Southwestern Engineering Corp.
The E. A. Key Company
Western Pipe & Steel Co.

Absorption Towers
Baker Iron Works.
C. F. Braun & Co.
J. A. Campbell.
S. Herbert Lanyon
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Abrasives
Abrasive Engineering Corp'n.

Acetylene, Dissolved
Commercial Acetylene Co.

Adjustable Plugs
Lattimer-Stevens Co.
Western Pipe & Steel Co.

Agitators
Baker Iron Works.
Western Pipe & Steel Co.

Aluminum Bronze Powder for Paint
Hill, Hubbell & Co.
The Paraffine Co.s, Inc.

Analyzers
C. F Braun & Co.
A. R. Maas, Laboratories.
Smith-Emery Co.

Annealers (Bar, Blank, Strip)
Pacific Meter Works.

Anti-Fluctuators
Pacific Meter Works.

Apparatus, Experimental Gas
The Alpha-Lux Co., Inc.
Pacific Meter Works.

Appraisals and Valuations
Smith-Emery Co.

Automobile Tires
Truck Tire Service Co.

Bags, Gas Main
C. B. Babcock Co.
Connelly Iron Sponge & Governor Co.
Mueller Co.
Safety Gas Main Stopper Co.
Semet-Solvey Engr. Corpn.

Barometers
Jensen Instrument Co.
Westcott & Greis, Inc.

Bench Iron Work
General Gas Light Co.

Blast Gates
Montague Pipe & Steel Co.
Semet-Solvay Engr. Corpn.

Blocks and Tiles, Fire Clay
The Alpha-Lux Co., Inc.
American Refractories Co.
Los Angeles Pressed Brick Co.
Semet-Solvay Engr. Corpn.
Stockton Fire Brick Co.
S. Herbert Lanyon.

Blowers and Boosters
Ingersoll-Rand Co.

Blowpipes
Montague Pipe & Steel Co.

Boiler—Brickwork
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Boiler Equipment
E. A. Key Co.

Boiler Maker's Tools
E. A. Key Co.

Boilers, Gas-Fired
C. B. Babcock Co.
Baker Iron Works.
Montague Pipe & Steel Co.

Boiler Settings, Pipe and Boiler Insulation
S. Herbert Lanyon.
Pioneer Paper Company.
J. T. Thorpe & Son, Inc.

Boilers, Waste Heat
Baker Iron Works.

Boilers, Water Tube
Baker Iron Works.
Montague Pipe & Steel Co.
Southwestern Engineering Corp.
Western Pipe & Steel Co.

Boxes
Baker Iron Works.
Semet-Solvay Engr. Corpn.

Brass (rods, sheets, tubes, wire)
Mueller Co.

Breakers
Ingersoll-Rand Co.

Breeching (Boiler and Stack)
Western Pipe & Steel Co.

Brick, Firebrick
Abrasive Engineering Corp'n.
The Alpha-Lux Co., Inc.
American Refractories Co.
Los Angeles Pressed Brick Co.
S. Herbert Lanyon.
Semet-Solvay Engr. Corpn.
Stockton Fire Brick Co.

Brick, Firebrick—Installation
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Brushes, Wire Pneumatic
Abrasive Engineering Corp'n.
Ingersoll-Rand Co.

Buildings, Steel
Baker Iron Works.
Western Pipe & Steel Co.

Bunkers, Steel and Concrete
Western Pipe & Steel Co.

Burners, High Pressure
S. Herbert Lanyon.
Lee B. Mettler.
Rotary Manufacturing Co.

Burners, Low Pressure
C. B. Babcock Co.
General Gas Light Co.
S. Herbert Lanyon.
Lee B. Mettler.
Payne Furnace & Supply Co.
Rotary Manufacturing Co.

Burners—Oil
Rotary Manufacturing Co.

By-product Recovery Apparatus
Oliver Continuous Filter Co.
Semet-Solvay Engr. Corpn.

Calorimeter Accessories
Pacific Meter Works.

Calorimeters
The Alpha-Lux Co., Inc.
Pacific Meter Works.

Cases, Meter
Pacific Meter Works.
Pittsburgh Meter Co.

Casinghead, Gas Meters
Jensen Instrument Co.
Pacific Meter Works.
Pittsburgh Meter Co.
The Foxboro Co., Inc.

Casing and Tubing (steel)
Montague Pipe & Steel Co.
Semet-Solvay Engr. Corpn.
South Chester Tube Co.

Casing—Iron
South Chester Tube Company

Cast Iron Pipe
Semet-Solvey Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.

Castings
Philadelphia Steel & Iron Co.
Semet-Solvay Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.

Cement
Abrasive Engineering Corp'n.
Stockton Fire Brick Co.

Cement, High Temperature
Stockton Fire Brick Co.

Cement—Plastic
Pioneer Paper Company.

Centrifugal Pipe
United States Cast Iron Pipe and Foundry Co.

Charging Machines (retort, etc.)
Semet-Solvay Engr. Corpn.

Checker Brick
Abrasive Engineering Corp'n.
American Refractories Co.
Los Angeles Pressed Brick Co.
Semet-Solvay Engr. Corpn.
Stockton Fire Brick Co.

Chemical and Gas Testing Apparatus
The Alpha-Lux Co., Inc.
Pacific Meter Works.
Westcott & Greis, Inc.

Chemists, Analytical
A. R. Maas, Laboratories.
Smith-Emery Co.

Chimneys, Radial Brick
American Refractories Co.
Los Angeles Pressed Brick Co.
Stockton Fire Brick Co.

Chimneys, Radial Brick Installation
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Chutes (coal, coke, ash)
Semet-Solvay Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.

Clamps and Sleeves, Pipe
Mueller Co.

Clamps, Service
Mueller Co.

Cleaners, Service
C. B. Babcock Co.
Pacific Meter Works.

Coal Gas Plants
Semet-Solvay Engr. Corpn.

Coal Tar Products and Chemicals
A. R. Maas, Laboratories.
The Paraffine Co.s, Inc.

Cocks
C. B. Babcock Co.
Lattimer-Stevens Co.
Merco Nordstrom Valve Co.
Mueller Co.
Geo. D. Roper Corporation.

Coils and Bends
Philadelphia Steel & Iron Co.

Collectors, Dust
Western Pipe & Steel Co.
Semet-Solvay Engr. Corpn.

Compressors, Air
The C. & G. Cooper Co.
Ingersoll-Rand Co.
Oliver Continuous Filter Co.
Robertson & Company.

Compressors, Gas
The C. & G. Cooper Co.
Ingersoll-Rand Co.

Compressors, High Pressure
The C. & G. Cooper Co.
Ingersoll-Rand Co.

Compressors, Portable
Ingersoll-Rand Co.
Robertson & Company.

Condensers
Baker Iron Works.
C. F. Braun & Co.
Ingersoll-Rand Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.

Condenser Boxes
Baker Iron Works.

Condenser Tubes
Semet-Solvay Engr. Corpn.

Controllers
Jensen Instrument Co.
The Foxboro Co., Inc.

Controlling Devices, Electric
L. R. Teeple Co.

Controls, Air and Steam
Jensen Instrument Co.
S. Herbert Lanyon.
C. F. Braun & Co.
The Foxboro Co., Inc.
S. Herbert Lanyon.
Steere Engineering Co.
L. R. Teeple Co.

Cooling Systems
S. Herbert Lanyon.
Semet-Solvay Engr. Corpn.

Cooling Towers
C. F. Braun & Co.
Fluor Construction Co.
J. B. Gill Corporation.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.

Counters, Revolution
Jensen Instrument Co.

Couplings
Pittsburgh Meter Co.

Coverings (Tank, Boiler, Cold and Steam Pipe)
The Paraffine Co.s, Inc.
Pioneer Paper Company.

Cubic Foot Bottle
Pacific Meter Works.

Cutters, Pavement
Ingersoll-Rand Co.
Robertson & Company.

Cutters, Pavement
Ingersoll-Rand Co.

Cylinders, Compressor
The C. & G. Cooper Co.
Semet-Solvay Engr. Corpn.

Dephlegmaiers
C. F. Braun & Co.
Southwestern Engineering Corp.
Semet-Solvey Engr. Corpn.
Western Pipe & Steel Co.

Diaphragms, Meter
Chaplin-Fulton Mfg. Co.
Pacific Meter Works.
Pittsburgh Meter Co.

Diggers, Clay
Ingersoll-Rand Co.
Robertson & Company.

Discharging Machines (retort, etc.)
Semet-Solvay Engr. Corpn.

Displacement System, Tar
Semet-Solvey Engr. Corpn.

Ditcher
Robertson & Company.

Door, Clean-out
Baker Iron Works.
Semet-Solvay Engr. Corpn.

Drills
Ingersoll-Rand Co.
Mueller Co.

Drill Pipe—Iron
South Chester Tube Company

Drill Pipe—Steel
South Chester Tube Company

Dryers
Payne Furnace & Supply Co.

Elevators
Baker Iron Works.

Engineers and Engineering Service
J. B. Gill Corporation.
A. R. Maas, Laboratories.
Smith-Emery Co.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Engines, Diesel
The C. & G. Cooper Co.

Engines, Gas
The C. & G. Cooper Co.
Ingersoll-Rand Co.

Engines, Oil
The C. & G. Cooper Co.
Ingersoll-Rand Co.

Engines, Steam
Ingersoll-Rand Co.

Evaporating Apparatus
C. F. Braun & Co.
United States Cast Iron Pipe and Foundry Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.

Excavators, Ditch and Trench
Robertson & Company.

Exchangers, Heat
Baker Iron Works.
C. F. Braun & Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Exhausters
Ingersoll-Rand Co.
S. Herbert Lanyon.
United States Cast Iron Pipe and Foundry Co.

Experimental Apparatus
S. Herbert Lanyon.
Pacific Meter Works.

Extractors
Semet-Solvay Engr. Corpn.

Extinguishers, Fire
American La France Fire Engine Co.

Faucets, Drain
Mueller Co.

Felt—Deadening
Pioneer Paper Company.

Filters
S. Herbert Lanyon.
Oliver Continuous Filter Co.
United States Cast Iron Pipe and Foundry Co.

Fire Clay and Products
The Alpha-Lux Co., Inc.
American Refractories Co.
S. Herbert Lanyon.
Los Angeles Pressed Brick Co.
Stockton Fire Brick Co.

Fire Brick Contractors
J. T. Thorpe & Son, Inc.
Stockton Fire Brick Co.

First Aid Equipment
American La France Fire Engine Co.

Fittings
Hoffman Supply Co.
Philadelphia Steel & Iron Co.
Semet-Solvay Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.

Fixtures, Lighting (Domes, Portables, etc.)
C. B. Babcock Co.
Welsbach Company.

Flashlights and Batteries
The Paraffine Co.s, Inc.

Feed Water Heaters
C. F. Braun & Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.

Fire Brick
Abrasive Engineering Corp'n.
The Alpha-Lux Co., Inc.
American Refractories Co.
S. Herbert Lanyon.
Los Angeles Pressed Brick Co.
Stockton Fire Brick Co.
Semet-Solvay Engr. Corpn.

Flanges
Hoffman Supply Co.
Montague Pipe & Steel Co.
Philadelphia Steel & Iron Co.
Pittsburgh Meter Co.
Semet-Solvay Engr. Corpn.
Westcott & Greis, Inc.
S. Herbert Lanyon.

Floodlights

Flooring—Industrial
Pioneer Paper Company.

Forged Steel Pipe Flanges
Philadelphia Steel & Iron Co.

Forgings
Baker Iron Works.
Philadelphia Steel & Iron Co.
S. Herbert Lanyon.
Payne Furnace & Supply Co.
Potter Radiator Corporation.
Pacific Gas Heating Co.
Geo. D. Roper Corporation.
J. T. Thorpe & Son, Inc.

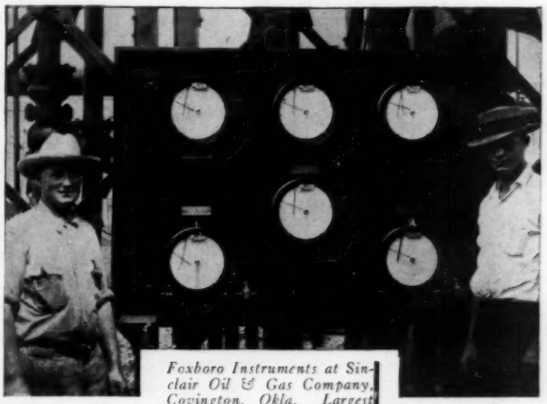
Sprague Meters

Represent
Twenty-five Years of
Progress

We Are Proud of
Our Service to
the West

Sprague Meter Co.

Los Angeles, California
San Francisco, California



Foxboro Instruments at Sinclair Oil & Gas Company, Covington, Okla. Largest natural gas plant in the world.

Stabilize Still Operation

STABILIZED still operation means increased gasoline yield. The only way that this can be accomplished is by eliminating guesswork from still operation.

Foxboro Automatic Controllers, with Full Floating Valve action, not only give you an accurate minute-to-minute report on past and present operation, but actually control the various conditions within extremely close limits. Exact schedules can be followed by the still men.

You cannot purchase a more accurate or dependable controller. It is guaranteed permanent in calibration and is accurate to within less than 1 per cent of total scale range.

The Foxboro Automatic Controller is backed by a national sales and service organization; a branch office is located conveniently near your plant.

THE FOXBORO CO., *Inc.*
Neponset Avenue, Foxboro, Mass., U. S. A.
WESTERN OFFICES
Los Angeles, 443 San Pedro St. San Francisco, 461 Market St.
Portland, Ore., 816 Lewis Bldg.

New York Chicago Philadelphia Pittsburgh Detroit
Rochester Boston Atlanta Tulsa Cleveland

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

Furnaces, Floor
Electrogas Furnace Co.
Payne Furnace & Supply Co.
Pacific Gas Heating Co.
Potter Radiator Corporation.

Furnaces, Lead Melting
C. B. Babcock Co.
Mueller Co.
Payne Furnace & Supply Co.
Potter Radiator Corporation.

Gas Analysis Apparatus
Jensen Instrument Co.
Pacific Meter Works.
The Foxboro Co., Inc.

Gas Masks
Safety Gas Main Stopper Co.

Gas Main Tapping & Drilling Machines
Mueller Co.

Gaskets
Pittsburgh Meter Co.
Safety Gas Main Stopper Co.
Semet-Solvay Engr. Corpn.
The E. A. Key Company

Gasket Compound
E. A. Key Co.

Gasometer
Pacific Meter Works.
Semet-Solvay Engr. Corpn.

Gas Pipe Line Construction
Robertson & Company.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Gauges
The Alpha-Lux Co., Inc.
Jensen Instrument Co.
Pacific Meter Works.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Semet-Solvay Engr. Corpn.
Westcott & Greis, Inc.

Gauges, Steam
Jensen Instrument Co.
Semet-Solvay Engr. Corpn.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Gauges, U Type
C. B. Babcock Co.
Jensen Instrument Co.
Lee B. Mettler.
Pacific Meter Works.
Safety Gas Main Stopper Co.
Semet-Solvay Engr. Corpn.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Generators, Acetylene
Commercial Acetylene Co.

Generators, Water Gas
Baker Iron Works.
Semet-Solvay Engr. Corpn.

Glassware
Westcott & Gries, Inc.

Governors
C. B. Babcock Co.
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Governor Co.
Pacific Meter Works.
Reynolds Gas Regulator Co.
Sprague Meter Co.
Semet-Solvay Engr. Corpn.
Westcott & Greis, Inc.

Hammers
Ingersoll-Rand Co.

Hanger, Meter
Mueller Co.

Hangers, Iron and Steel
Baker Iron Works.
Philadelphia Steel & Iron Co.

Heaters
C. B. Babcock Co.
Baker Iron Works.
C. F. Braun & Co.
General Gas Light Co.
S. Herbert Lanyon.
Pacific Gas Heating Co.
Payne Furnace & Supply Co.
Potter Radiator Corporation.
Welsbach Company.
John Wood Mfg. Co.

Heaters, Floor
Electrogas Furnace Co.
General Gas Light Co.
Pacific Gas Heating Co.
Payne Furnace & Supply Co.
Potter Radiator Corporation.

Heaters, Wall
C. B. Babcock Co.
General Gas Light Co.
Pacific Gas Heating Co.
Payne Furnace & Supply Co.
Potter Radiator Corporation.

Heat Exchangers
Baker Iron Works.
C. F. Braun & Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.
Semet-Solvey Engr. Corpn.
Western Pipe & Steel Co.

Heat Interchangers
C. F. Braun & Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Hoists
Ingersoll-Rand Co.

Holders
Baker Iron Works.

Holders, High Pressure
Baker Iron Works.
Western Pipe & Steel Co.

Hoppers
Montague Pipe & Steel Co.

Hose, Air
Ingersoll-Rand Co.

Hot Plates
C. B. Babcock Co.
Geo. D. Roper Corporation.

Hygrometers
Jensen Instrument Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Incinerators
C. B. Babcock Co.
Baker Iron Works.
S. Herbert Lanyon.
J. T. Thorpe & Son, Inc.
Western Pipe & Steel Co.

Incinerator Brickwork
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Indicators
S. Herbert Lanyon.
Westcott & Greis, Inc.

Instruments (Measuring, Testing and Recording)
The Alpha-Lux Co., Inc.
Jensen Instrument Co.
National Meter Co.
Pacific Meter Works.
The Foxboro Co., Inc.
Semet-Solvay Engr. Corpn.
Westcott & Greis, Inc.

Insulating Materials
Beacon Water Heater Co.
The Paraffine Co.s, Inc.
Pioneer Paper Company.
Stockton Fire Brick Co.

Joint Runners Asbestos
Safety Gas Main Stopper Co.

Kilns
J. T. Thorpe & Son, Inc.
Western Pipe & Steel Co.

Kilns—Brickwork
J. N. J. Firebrick Co.

Laboratory Supplies
Mueller Co.
S. Herbert Lanyon.
Westcott & Greis, Inc.

Ladles, Hot Metal
Mueller Co.
Philadelphia Steel & Iron Co.

Lamps
C. B. Babcock Co.
General Gas Light Co.
Welsbach Company.

Lighters
C. B. Babcock Co.
Tappan Stove Co.

Lighting Incidentals
C. B. Babcock Co.
Welsbach Company.

Line Pipe—Iron
South Chester Tube Company

Line Pipe—Steel
South Chester Tube Company

Linings—Brickwork
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Linings—Car
Pioneer Paper Company.

Main, Bags
C. B. Babcock Co.
Mueller Co.
Safety Gas Main Stopper Co.

Mains, Street
United States Cast Iron Pipe and Foundry Co.

Main, Stopper
C. B. Babcock Co.
Mueller Co.
Safety Gas Main Stopper Co.

Mantles, Gas Lighting
C. B. Babcock Co.
General Gas Light Co.
Welsbach Company.

Manometers
Jensen Instrument Co.
Lee B. Mettler.
Westcott & Greis, Inc.

Meters, Air
Jensen Instrument Co.
Pacific Meter Works.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Boiler
Jensen Instrument Co.
Pittsburgh Meter Co.
The Foxboro Co., Inc.

Meters, Burner Test
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Cast Iron Gas
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meter Connections
Lattimer-Stevens Co.
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Complaint
Pacific Meter Works.
Pittsburgh Meter Co.

Meters, Consumers
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Flow
Jensen Instrument Co.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Fluid
Jensen Instrument Co.
National Meter Co.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Gas
Jensen Instrument Co.
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.
Westcott & Greis, Inc.

Meters, Gasoline and Oil
Jensen Instrument Co.
National Meter Co.
Pittsburgh Meter Co.
Westcott & Greis, Inc.

Meters, High Pressure Distribution
Jensen Instrument Co.
Pittsburgh Meter Co.
Pacific Meter Works.
Sprague Meter Co.
The Foxboro Co., Inc.

Meters, High Pressure Iron Case
The E. A. Key Company
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Industrial Consumers
Jensen Instrument Co.
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.
The Foxboro Co., Inc.

Meters, Iron Case
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Laboratory
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.
Westcott & Greis, Inc.

Meters, Large Capacity
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.
Westcott & Greis, Inc.

Meters, Oil
Jensen Instrument Co.
National Meter Co.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Orifice
Jensen Instrument Co.
S. Herbert Lanyon.
Pacific Meter Works.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Oxygen
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Oxygen and Hydrogen
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meters, Prepayment
Pacific Meter Works.
Pittsburgh Meter Co.
Sprague Meter Co.

Meter Seals
Lattimer-Stevens Co.

Meter Shelves
Lattimer-Stevens Co.

Meter Swivels and Caps
Lattimer-Stevens Co.

Meters, Station
Pacific Meter Works.
Pittsburgh Meter Co.

Meters, Steam
Jensen Instrument Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Meters, Test
National Meter Co.
Pittsburgh Meter Co.
Pacific Meter Works.
Sprague Meter Co.
Westcott & Greis, Inc.

Meters, Water
Jensen Instrument Co.
National Meter Co.
Pittsburgh Meter Co.
Westcott & Greis, Inc.

Meters, Wet Test
Pacific Meter Works.
Pittsburgh Meter Co.

Mixers, Gas and Air
C. B. Babcock Co.
Geo. D. Roper Corporation.
Pacific Gas Heating Co.

Oil Condenser Sections
S. Herbert Lanyon.
Semet-Solvay Engr. Corpn.

Oil, Diaphragm
Pacific Meter Works.

Over Heat Control
The Wilcolator Company

Oxide
C. B. Babcock Co.
The Alpha-Lux Co., Inc.
E. J. Lavino Company.
A. R. Maas, Laboratories.

Packing, Asbestos
Safety Gas Main Stopper Co.

Paint
Eclipse Paint & Mfg. Co.
The Paraffine Co.s, Inc.
Everlasting Paint & Sales Co.
Hill, Hubbell & Company.

Paint—Black
Pioneer Paper Company.

Photometers
Pacific Meter Works.

Pilots
Payne Furnace & Supply Co.
The Wilcolator Company

Pipe
Semet-Solvay Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.
Western Pipe & Steel Co.

Pipe Compound
E. A. Key Co.

Pipe, Copper
Mueller Co.

Pipe Covering
Everlasting Paint & Sales Co.
Hill, Hubbell & Company.
The Paraffine Co.s, Inc.
Pioneer Paper Company.

Pipe Cutters
W. W. Strickler & Bros.

Pipe—Iron
South Chester Tube Company

Pipe—Steel
South Chester Tube Company

Pipe Coils, Bends, Van Stone Joints, Gasketless Flange Joints, Welded Nozzle Headers
Philadelphia Steel & Iron Co.
Semet-Solvay Engr. Corpn.

Pipe Jointers
Mueller Co.

Plugs (testing mains and running service)
C. B. Babcock Co.
Jensen Instrument Co.
The Foxboro Co., Inc.
Safety Gas Main Stopper Co.
United States Cast Iron Pipe and Foundry Co.

Pre-Heaters
Baker Iron Works.
C. F. Braun & Co.
Southwestern Engineering Corp.
Western Pipe & Steel Co.

Producers, Gas
Semet-Solvay Engr. Corpn.
United States Cast Iron Pipe and Foundry Co.

Protective Coating
Everlasting Paint & Sales Co.
Hill, Hubbell & Co.

Provers, Meter
Pacific Meter Works.
Pittsburgh Meter Co.

Pumps
C. B. Babcock Co.
Ingersoll-Rand Co.
Mueller Co.
Oliver Continuous Filter Co.
Pacific Meter Works.
Geo. D. Roper Corporation.
Safety Gas Main Stopper Co.

Purifiers
Baker Iron Works.
Semet-Solvay Engr. Corpn.

Purifying Materials
The Alpha-Lux Co., Inc.
C. B. Babcock Co.
Connelly Iron Sponge & Governor Co.
A. R. Maas, Laboratories.

Purifiers, Oil Absorption
Western Pipe & Steel Co.

Pyrometers (Indicating and Recording)
Jensen Instrument Co.
Westcott & Greis, Inc.

Radiants
American Refractories Co.
C. B. Babcock Co.
General Gas Light Co.

Radiant Heaters
C. B. Babcock Co.
General Gas Light Co.
Pacific Gas Heating Co.
Welsbach Company.

Radiators, Gas-Fired
Pacific Gas Heating Co.
Potter Radiator Corporation.

Radiators, Gas-Steam
Pacific Gas Heating Co.

Ranges
C. B. Babcock Co.
Detroit Vapor Stove Co.
Geo. D. Roper Corporation.
Tappan Stove Co.

Ranges, Closed Top
C. B. Babcock Co.
Geo. D. Roper Corp.
Tappan Stove Co.

Receivers, Air
Ingersoll-Rand Co.
John Wood Mfg. Co.
Montague Pipe & Steel Co.
Western Pipe & Steel Co.

Recorders
Jensen Instrument Co.
Pittsburgh Meter Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Refrigerating Machinery
C. & G. Cooper Co.
Ingersoll-Rand Co.

Refractory Materials
Abrasive Engineering Corp'n.
The Alpha-Lux Co., Inc.
American Refractories Co.
S. Herbert Lanyon.
E. J. Lavino Company.
Los Angeles Pressed Brick Co.
Stockton Fire Brick Co.

Regulators, Heat
C. B. Babcock Co.
Arthur F. Erickson Co.
Payne Furnace & Supply Co.
The Foxboro Co., Inc.
L. R. Teeple Co.
The Wilcolator Company

Regulators, High Pressure
C. B. Babcock Co.
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Governor Co.
Mueller Co.
Reliance Mfg. Co.
Reynolds Gas Regulator Co.
Sprague Meter Co.
L. R. Teeple Co.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Regulators, Hot Water Heat Control
Mueller Co.

Regulators, Low Pressure
C. B. Babcock Co.
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Governor Co.
Reliance Mfg. Co.
Mueller Co.
Reynolds Gas Regulator Co.
Sprague Meter Co.

Oliver-Borden Thickners

Oliver Filters

used for

Oil -- Gas -- Carbon Dewatering

Mean

Carbon suitable for Briquetting or burning under boilers.

Clean wash water for re-use or to waste.

Minimum of handling.

Clean plants.

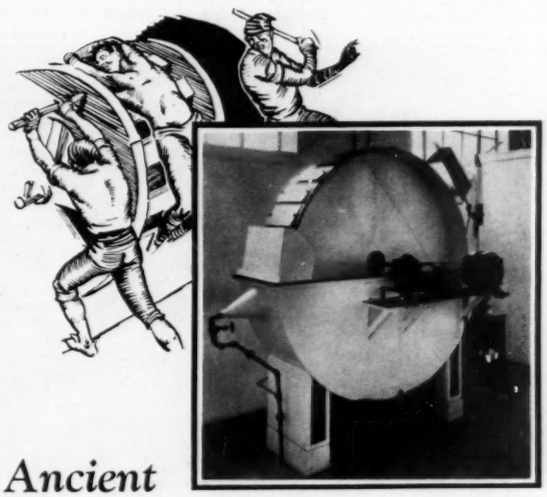
Oliver Continous Filter Co.

SAN FRANCISCO
503 Market Street

NEW YORK
33 West 42nd Street

LONDON
11 Southampton Row

JOHANNESBURG, SOUTH AFRICA
E. L. Bateman The Corner House



Ancient Torture "Wheel" Applied to Paint Industry

Lasting Qualities of Hill, Hubbell Paints Insured By Paint-Punishing Wheel Test

Borrowing the principle of the ancient torture wheel, Hill, Hubbell & Company have developed, in their laboratories, a machine that tests paints by subjecting them to an unusual amount of punishment.

Thirty-one samples of paint are prepared and placed around the rim of the test wheel. It turns very slowly—about two revolutions per hour. The samples are first subjected to extreme heat, then plunged into freezing cold water. Next, the panels receive a spray of warm water and then their dripping services are exposed to intense ultra-violet rays.

This gruelling test is repeated for one thousand hours—considered equivalent to four years exposure to the elements. Only the fit survive. Such paints are worthy of protecting your property.

HILL, HUBBELL & COMPANY

Manufacturers of Highest Grade Oil Industry Paints and Pipe Line Coatings

Factories at SAN FRANCISCO and TULSA
District Offices

331 W. Eleventh St. LOS ANGELES
1006 Washington Ave. HOUSTON
15 Moore St NEW YORK CITY
2312 First Ave. S. SEATTLE
51 First St. PORTLAND
600 E. Lombard St. BALTIMORE

The Foxboro Co., Inc.
L. R. Teeple Co.
Westcott & Greis, Inc.

Regulators, Temperature
C. B. Babcock Co.
Arthur F. Erickson Co.
Jensen Instrument Co.
Payne Furnace & Supply Co.
The Foxboro Co., Inc.
L. R. Teeple Co.
Westcott & Greis, Inc.
The Wilcolator Company

Regulators, Oven
C. B. Babcock Co.
Connelly Iron Sponge & Governor Co.
The Foxboro Co., Inc.
The Wilcolator Company

Repairs—Brickwork
J. N. J. Firebrick Co.
J. T. Thorpe & Son, Inc.

Resuscitating and First Aid Devices
Connelly Iron Sponge & Governor Co.

Retorts
Abrasive Engineering Corp'n.

Riveted Pipe
Montague Pipe & Steel Co.

Riveters, Pneumatic
Ingersoll-Rand Co.

Rivet Sets
Ingersoll-Rand Co.

Roofing
The C. & G. Cooper Co.
Pioneer Paper Company.

Rotisserie
C. B. Babcock Co.
General Gas Light Co.

Rust Preventatives
Everlasting Paint & Sales Co.
Pioneer Paper Company.

Safety Devices
American La France Fire Engine Co.

Seals
Lattimer-Stevens Co.

Scrubbers
Baker Iron Works.
Montague Pipe & Steel Co.
Southwestern Engineering Corp.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Selling Agents
S. Herbert Lanyon.

Settings, Boiler and Bench
S. Herbert Lanyon.
J. J. Thorpe & Son, Inc.

Sheet Metal
Baker Iron Works.
Montague Pipe & Steel Co.
Western Pipe & Steel Co.

Shingles
Pioneer Paper Company.

Specials
Steere Engineering Co.
United States Cast Iron Pipe and Foundry Co.

Stacks, Steel
Baker Iron Works.
Montague Pipe & Steel Co.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Stand Pipes
Baker Iron Works.
Montague Pipe & Steel Co.
Western Pipe & Steel Co.

Steel, Alloy
Philadelphia Steel & Iron Co.

Steel Plate Construction
Baker Iron Works.
Montague Pipe & Steel Co.
Philadelphia Steel & Iron Co.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Steel Work, Structural
Baker Iron Works.
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Stills
Baker Iron Works.
C. F. Braun & Co.
S. Herbert Lanyon.
Southwestern Engineering Corp.
Western Pipe & Steel Co.

Stoppers, Gas Main
C. B. Babcock Co.
Mueller Co.
Safety Gas Main Stopper Co.

Stops, Brass
Lattimer-Stevens Co.
Mueller Co.

Stops, Iron Body
Lattimer-Stevens Co.
Mueller Co.

Strainer, Gas, Water, Air, and Oil
Mueller Co.

Systems
Payne Furnace & Supply Co.
Semet-Solvay Engr. Corpn.

Surface Irrigation Pipe
Montague Pipe & Steel Co.

Systems—Heating
C. B. Babcock Co.
Payne Furnace & Supply Co.

Systems, Hot Water Heat Control
Mueller Co.

Tachometers
Jensen Instrument Co.
Westcott & Greis, Inc.
The Foxboro Co., Inc.

Tanks
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Tar Dehydrators
Semet-Solvay Engr. Corpn.

Thermometers (Indicating and Recording, etc.)
Jensen Instrument Co.
Semet-Solvay Engr. Corpn.
The Foxboro Co., Inc.
Westcott & Greis, Inc.

Thermostats, all kinds
C. B. Babcock Co.
Arthur F. Erickson Co.
Payne Furnace & Supply Co.
L. R. Teeple Co.

Thickeners
Oliver Continuous Filter Co.

Tile, Refractory
Abrasive Engineering Corp'n.
American Refractories Co.
Los Angeles Pressed Brick Co.
S. Herbert Lanyon.
Stockton Fire Brick Co.

Tools
Mueller Co.
Safety Gas Main Stopper Co.

Traps, Steam
Jensen Instrument Co.

Trench Excavators
C. B. Babcock Co.

Trench Work
Robertson & Company.

Trucks, Automobile
American La France Fire Engine Co.
The E. A. Key Company

Truck Tires
Truck Tire Service Co.

Tubes, Boiler
The E. A. Key Company
Semet-Solvay Engr. Corpn.

Tubes, Condenser
Semet-Solvay Engr. Corpn.

Tubing—Iron
Montague Pipe & Steel Co.
Muller & Co.
South Chester Tube Company
Semet-Solvay Engr. Corpn.

Tubing—Steel
South Chester Tube Company

Unions
Mueller Co.
Philadelphia Steel & Iron Co.
Pittsburgh Meter Co.

Valves, Back Pressure
C. B. Babcock Co.
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Governor Co.
Jensen Instrument Co.
S. Herbert Lanyon.
Reynolds Gas Regulator Co.
Semet-Solvay Engr. Corpn.
Westcott & Greis, Inc.

Valves, Electro-Magnetic
C. B. Babcock Co.
Arthur F. Erickson Co.
S. Herbert Lanyon.
Potter Radiator Corporation.
L. R. Teeple Co.

Valves, Gas Engine
The C. & G. Cooper Co.

Valves, Gate
Baker Iron Works.
Philadelphia Steel & Iron Co.
Semet-Solvay Engr. Corpn.

Valves, Needle for Gas Stoves
C. B. Babcock Co.
L. R. Teeple Co.

Valves, Relief
Chaplin-Fulton Mfg. Co.
Robertson & Company.
Connelly Iron Sponge & Governor Co.
Jensen Instrument Co.
S. Herbert Lanyon.
Mueller Co.
Reynolds Gas Regulator Co.

Valves, Plug
Jensen Instrument Co.
Lattimer-Stevens Co.
Merco Nordstrom Valve Co.

Valves, Thermo
Arthur F. Erickson Co.

Varnishes
Hill, Hubbell & Company.

Vent Pipe
Mueller Co.

Vulcanizers (Tube) Gas
Reliance Mfg. Co.

Washers
Semet-Solvay Engr. Corpn.
Western Pipe & Steel Co.

Water Gas Equipment
Semet-Solvay Engr. Corpn.

Water Heaters
C. F. Braun & Co.
Beacon Water Heater Co.
S. Herbert Lanyon.
Pacific Gas Heating Co.
Rotary Manufacturing Co.
Welsbach Company.
John Wood Mfg. Co.

Waterproofing Materials
Pioneer Paper Company.

Welding
Commercial Acetylene Co.
Donald A. Holm Co.
Montague Pipe & Steel Co.
Robertson & Company.
Semet-Solvay Engr. Corpn.

Welded Pipe
Montague Pipe & Steel Co.

Welding Rods
Commercial Acetylene Co.
Donald A. Holm Co.
Philadelphia Steel & Iron Co.

Well Casing
Montague Pipe & Steel Co.

Wire
Philadelphia Steel & Iron Co.

Yarn, Calking
Pioneer Paper Company.
Safety Gas Main Stopper Co.

Sell the heater that *Sells Gas*

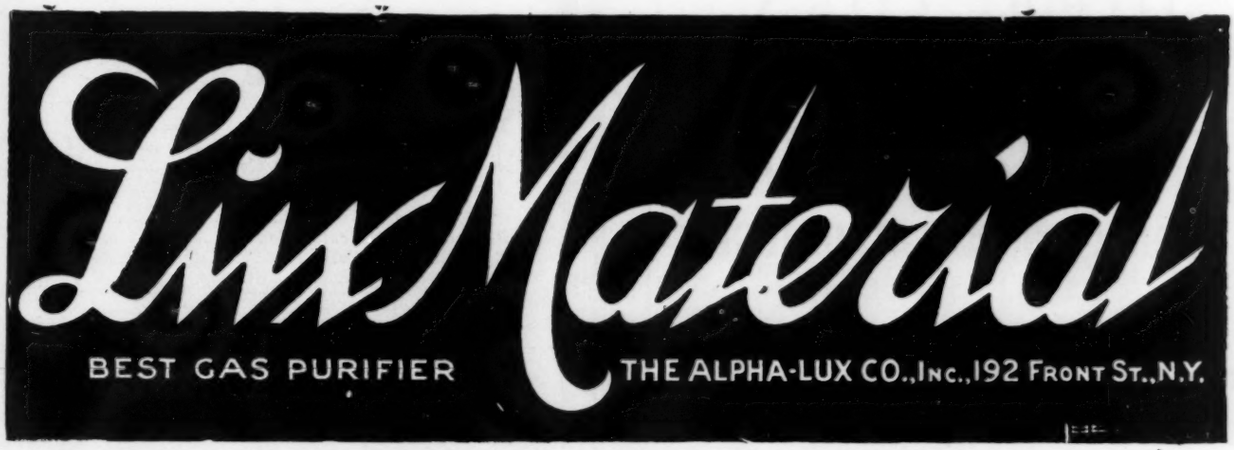
PERFECT water heating service is the best inducement to the consumer to use gas.

You can guarantee that kind of service when you sell rustproof heaters. Installations that have

COPPER storage tanks
BRASS valves
COPPER coils
BRASS pipe

give lasting satisfaction because COPPER and BRASS never rust.

COPPER & BRASS
RESEARCH ASSOCIATION
25 Broadway - New York



LAVINO OXIDE
FOR GAS PURIFICATION
E. J. LAVINO AND COMPANY. BULLITT BLDG. PHILADELPHIA, PA.

Mettler Entrained Combustion Gas Burners
FOR ALL Purposes Kinds of gas Pressures
406 S. Main St. LEE B. METTLER. CO. Los Angeles Cal.

DIRECTORY

Byllesby Engineering and Management Corporation
231 S. La Salle Street
CHICAGO
New York Tacoma San Diego

Gas Generating Equipment
Tanks
Boilers
Elevators, Hoists, Cranes
Low Pressure Valves
Gray Iron Castings
Structural Steel
BAKER IRON WORKS
Los Angeles
950 No. Broadway

S. HERBERT LANYON
SALES ENGINEER
Representing: SCHUTTE & KOERTING CO.
M. H. DETRICK CO.
LAPP INSULATOR CO.
New Call Bldg.—San Francisco
Transportation Bldg.—Los Angeles

SWEDISH WELDING RODS
T-H BRAND
Stocks Carried By
DONALD A. HOLM CO.
Exclusive Pacific Coast Agents
2261 E. 15th St. Los Angeles Telephone TRinity 7585

J NJ FIREBRICK CONSTRUCTION Co
Specializing in Gas Generators and Boiler Installations
475 Stevenson St.
SAN FRANCISCO
25 Years' Experience
Estimates Furnished
Particular attention to Repairing
Prompt and Efficient Service
Phone Kearny 3850

Advertisers' Index

Abrasive Engineering Corp. 54
The Alpha-Lux Co., Inc. 63
American Gas Products Corp. 21
American Seamless Tube Co. 17
American Refractories Co. 48

C. B. Babcock Co. 55
Beacon Water Heater Co. 52
C. F. Braun & Co. 9

J. A. Campbell 56
Chaplin-Fulton Mfg. Co. 57
Connelly Iron Sponge Co. 48
C. & G. Cooper Co. ..... —
Copper & Brass Research Assn. 63

The Detroit Vapor Stove Co. ..... *Third Cover*

Eclipse Paint & Mfg. Co. 50
Arthur F. Erickson Co. 44

The Foxboro Co., Inc. 59
Fluor Construction Co. 47

General Gas Light Co. 14
J. G. Gill Corporation 45

Hill, Hubbell & Co. 61

Ingersoll-Rand Company 3

Jensen Instrument Co. 44
Johnson Gas Appliance Co. 52

E. A. Key Company 49
The Kleenburn Co. 41

Lattimer-Stevens Co. ..... *Fourth Cover*
E. J. Lavino & Co. 63
Los Angeles Pressed Brick Co. 49

Arthur R. Maas 46
Merco Nordstrom Valve Co. ..... *Second Cover*
Lee B. Mettler Co. 63
Montague Pipe & Steel Co. 43
Chas. C. Moore & Co. 54
Mueller Co. 7

Oliver Continuous Filter Co. 61

Pacific Gas Radiator Co. 11
Pacific Gas & Electric Co. 10
Pacific Meter Works 6
Paraffine Companies, Inc. 43
Payne Furnace & Supply Co., Inc. 45
Pioneer Paper Co. 55
Pittsburgh Equitable Meter Co. 13

Reliance Manufacturing Co. 51
Reynolds Gas Regulator Co. 54
George D. Roper Corporation 15
Rotary Manufacturing Co. 52

Safety Gas Main Stopper Co. 8
Semet-Solvay Eng. Corp. 22
Smith-Emery Co. 41
South Chester Tube Co. 46
Southwestern Engineering Corp. 1
Sprague Meter Company 59
Standard Gas Equipment Co. 18
Stockton Fire Brick Co. 53
W. W. Strickler & Bros. 56

Tappan Stove Company 16
L. R. Teeple Company 12
J. T. Thorpe & Son 53
Truck Tire Service Co. 4

U. S. Cast Iron Pipe and Foundry Co. 5

Volz Engineering Equip. Co. 42

Welsbach Company 20
Westcott & Greis, Inc. ..... —
Western Pipe & Steel Co. 51
The Wilcolator Co. 19
John Wood Mfg. Co. 47

Pre-selling can swell *your profits, too!*

DEALERS report instant success with "**pre**-selling" the new gas range principle that is sweeping the new White Star to higher sales peaks daily!

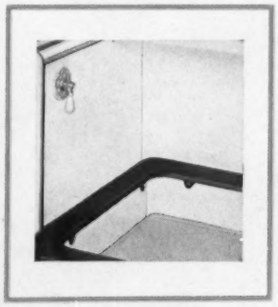
Pre-selling means putting behind this range the same tremendous sales urge that built the furniture and automobile industries—the sales force of fourteen **visible** improvements plus attractiveness in every detail. Thus, this range is built to instantly charm your prospect; she is **pre**-disposed to prefer this range—she is **pre**-sold!

This sale is then clinched and closed quickly by White Star's low price. Dealers say this boosts sales volume and cuts sales costs at the same time!

Let us present to you the same facts that started these dealers toward White Star profits. Write now!

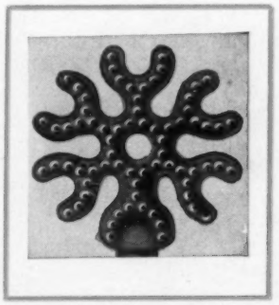
White Star Gas Ranges

Pronounced "World's Cleanest Gas Range" and first prize winner at California Maid Exposition. Has American Gas Association approval. Made in the world's most modern stove plant specializing in white enameled ranges. Sheet steel, cast iron and channel iron construction with interlocking joints assure strength with enough "give" under strain to save the enamel—a service-cutting feature.



Women know at a glance that five minutes with a damp cloth cleans this range. Its corners are rounded, its surface is glassy—it has no angular crevices to catch dirt; even the grate cannot conceal dirt. Examine this burner pit; it exemplifies this new conception of gas range design.

The new Even-Heet White Star Burner is designed on a pattern of interlocking circles, always assuring even heat distribution to every section of the cooking utensil.

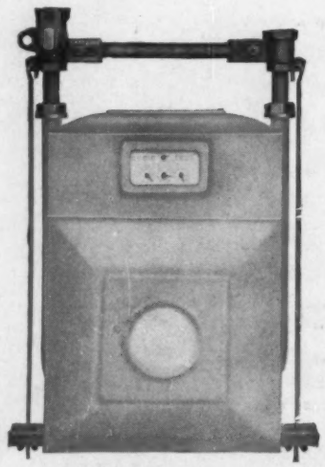


THE DETROIT VAPOR STOVE COMPANY
Detroit, Michigan

White Star
GAS RANGES

"Pacific Coast Representatives"
A. C. Merz, 1925 8th Avenue, Los Angeles—T. W. Simpson, 2903 Forest Avenue, Berkeley, Cal.

L-S
Adjustable
Meter Connections



Lattimer-Stevens No. 45-A tie-in bar meter connections with meter shelf. This type connection can be furnished either with or without round or straight-away opening stopcock built into the inlet end.

LATTIMER-STEVENS meter connections reduce to a minimum leaks due to sagging lines and washer shrinkage. Both the overlapping and tie-in bar types are adjustable to every variation in width and alignment of meter columns. After the connection has been adjusted to the meter, the bar connecting inlet and outlet members offers rigid protection for the meter.

Lattimer-Stevens patented shelf hooks on the connection and holds the meter tight up against it, thereby reducing leaks from washer shrinkage.

Lattimer-Stevens adjustable meter connection and shelves can be furnished in sizes and styles to fit all meters from 3-light to 100-light.

Samples and prices on request.

THE LATTIMER-STEVENS COMPANY

72 Yale Ave., Columbus, Ohio

New England Representative
The Eastern Service Co.
Boston, Mass.

San Francisco Representative
A. P. Bartley
67 Second St.

Chicago Representatives
The Utilities Service Co.
122 S. Michigan Ave.

Lattimer Stevens
METER CONNECTIONS-SHELVES
STOP COCKS AND SEALS